

**OIL SPILL SENSITIVITY OF THE WESTERN INDIAN OCEAN ISLANDS**

**Coastal Data from the Comoros Islands,  
Madagascar, Mauritius, Réunion and the Seychelles**

Compiled by the World Conservation Monitoring Centre

**Edited by Dr. Edmund Green**



**WORLD CONSERVATION  
MONITORING CENTRE**

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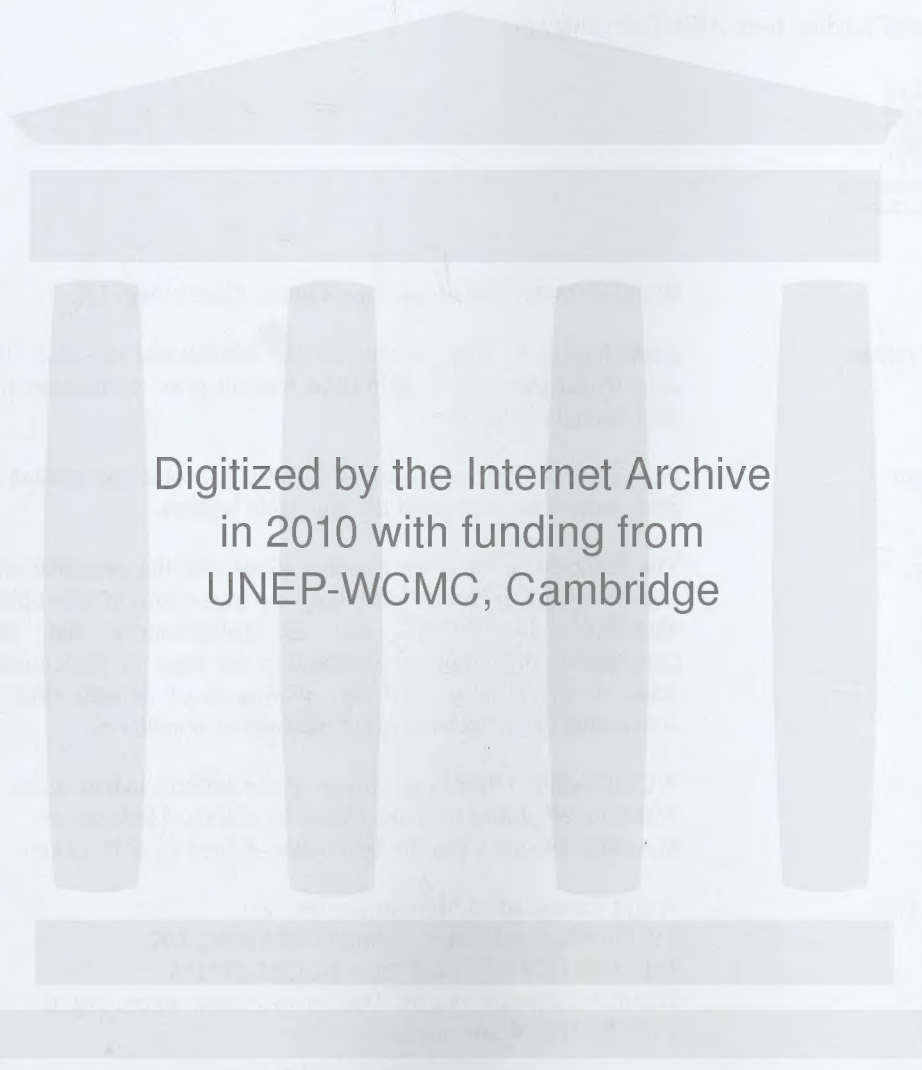
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# Endemic Species

The following pages are lists of endemic species for the five Indian Ocean countries. These lists contain some species which are not associated with coastal areas because the habitat use for species in the WCMC databases cannot currently be separated automatically. Therefore some of the species in these lists are unlikely to be threatened by an oil spill. WCMC has the information and expertise to identify the coastal; and marine endemic species, i.e. those species which are susceptible to oil spills, however there was not sufficient time allocated to allow this to be done.



**Comoros**

Taxon	Island	Source Code
AVES		
COLUMBIFORMES		
Columbidae		
<i>Columba pollenii</i>		SI&MO
PASSERIFORMES		
Corvidae		
<i>Dicrurus fuscipennis</i>	Grand Comoro	SI&MO
Muscicapidae		
<i>Humblotia flavirostris</i>		SI&MO
<i>Turdus bewsheri</i>	Grand Comoro	SI&MO
Nectariniidae		
<i>Nectarinia comorensis</i>	Anjouan	SI&MO
Pycnonotidae		
<i>Hypsipetes parvirostris</i>		SI&MO
Sylviidae		
<i>Nesillas brevicaudata</i>	Grand Comoro	SI&MO
<i>Nesillas longicaudata</i>	Anjouan	SI&MO
<i>Nesillas mariaae</i>	Moheli	SI&MO
Zosteropidae		
<i>Zosterops kirki</i>		SI&MO
<i>Zosterops mouroniensis</i>	Grand Comoro	SI&MO
STRIGIFORMES		
Strigidae		
<i>Otus pauliani</i>	Grand Comoro	SI&MO
MAMMALIA		
CHIROPTERA		
Pteropodidae		
<i>Pteropus livingstonei</i>		C&H3
<i>Rousettus obliviosus</i>		C&H3
REPTILIA		
SAURIA		
Chamaeleonidae		
<i>Chamaeleo cephalolepis</i>	Grand Comoro	Welch
<i>Chamaeleo polleni</i>	Moheli	ChBlanc

Gekkonidae	
<i>Paroedura sanctijohannis</i>	Welch
<i>Phelsuma v-nigra</i>	Welch
Scincidae	
<i>Amphiglossus johannae</i>	Welch
SERPENTES	
Colubridae	
<i>Lygodryas sanctijohannis</i>	Welch
Typhlopidae	
<i>Typhlops comoroensis</i>	Welch

## Madagascar

Taxon	Island	Source Code
AMPHIBIA		
ANURA		
Hyperoliidae		
<i>Heterixalus alboguttatus</i>		Frost
<i>Heterixalus andrakata</i>		Duellman
<i>Heterixalus betsileo</i>		Frost
<i>Heterixalus boettgeri</i>		Frost
<i>Heterixalus madagascariensis</i>		Frost
<i>Heterixalus rutenbergi</i>		Frost
<i>Heterixalus tricolor</i>		Frost
Mantellidae		
<i>Laurentomantis horrida</i>		Frost
<i>Laurentomantis malagasias</i>		Frost
<i>Laurentomantis ventrimaculata</i>		Frost
<i>Mantella aurantiaca</i>		Frost
<i>Mantella betsileo</i>		Frost
<i>Mantella cowani</i>		Duellman
<i>Mantella crocea</i>		Duellman
<i>Mantella expectata</i>		Duellman
<i>Mantella haraldmeieri</i>		Duellman
<i>Mantella laevigata</i>		Frost
<i>Mantella madagascariensis</i>		Frost
<i>Mantella viridis</i>		Duellman
<i>Mantidactylus acuticeps</i>		Frost
<i>Mantidactylus aerumnalis</i>		Frost
<i>Mantidactylus aglavei</i>		Frost
<i>Mantidactylus albofrenatus</i>		Frost
<i>Mantidactylus albolineatus</i>		Duellman
<i>Mantidactylus alutus</i>		Frost
<i>Mantidactylus ambohimitombi</i>		Frost
<i>Mantidactylus argenteus</i>		Frost
<i>Mantidactylus asper</i>		Frost
<i>Mantidactylus bertini</i>		Duellman
<i>Mantidactylus betsileanus</i>		Frost
<i>Mantidactylus bicalcaratus</i>		Frost
<i>Mantidactylus biporus</i>		Frost
<i>Mantidactylus blommersae</i>		Frost
<i>Mantidactylus boulengeri</i>		Frost
<i>Mantidactylus cornutus</i>		Duellman
<i>Mantidactylus curtus</i>		Frost
<i>Mantidactylus decaryi</i>		Frost
<i>Mantidactylus depressiceps</i>		Frost
<i>Mantidactylus domerguei</i>		Frost
<i>Mantidactylus eiselti</i>		Frost
<i>Mantidactylus elegans</i>		Frost
<i>Mantidactylus femoralis</i>		Frost
<i>Mantidactylus flavobrunneus</i>		Frost
<i>Mantidactylus glandulosus</i>		Frost
<i>Mantidactylus grandidieri</i>		Frost



<i>Mantidactylus grandisonae</i>	Frost
<i>Mantidactylus guibei</i>	Duellman
<i>Mantidactylus guttulatus</i>	Frost
<i>Mantidactylus klemmeri</i>	Frost
<i>Mantidactylus leucomaculatus</i>	Frost
<i>Mantidactylus liber</i>	Frost
<i>Mantidactylus lugubris</i>	Frost
<i>Mantidactylus luteus</i>	Frost
<i>Mantidactylus madecassus</i>	Frost
<i>Mantidactylus majori</i>	Frost
<i>Mantidactylus microtympanum</i>	Frost
<i>Mantidactylus mocquardi</i>	Duellman
<i>Mantidactylus opiparis</i>	Frost
<i>Mantidactylus peraccae</i>	Frost
<i>Mantidactylus phantasticus</i>	GLAW4
<i>Mantidactylus plicifer</i>	Frost
<i>Mantidactylus pseudoasper</i>	Frost
<i>Mantidactylus pulcher</i>	Frost
<i>Mantidactylus punctatus</i>	Frost
<i>Mantidactylus redimitus</i>	Frost
<i>Mantidactylus rivicola</i>	Vences
<i>Mantidactylus silvanus</i>	Vences
<i>Mantidactylus spinifer</i>	Duellman
<i>Mantidactylus tornieri</i>	Frost
<i>Mantidactylus ulcerosus</i>	Frost
<i>Mantidactylus webbi</i>	Frost
<i>Mantidactylus wittei</i>	Frost

#### Microhylidae

<i>Anodonthyla boulengerii</i>	Frost
<i>Anodonthyla montana</i>	Frost
<i>Anodonthyla nigrigularis</i>	Duellman
<i>Anodonthyla rouxae</i>	Frost
<i>Calluella brooksi</i>	Frost
<i>Cophyla phyllodactyla</i>	Frost
<i>Dyscophus antongilii</i>	Frost
<i>Dyscophus guineti</i>	Frost
<i>Dyscophus insularis</i>	Frost
<i>Madecassophryne truebae</i>	Frost
<i>Paradoxophyla palmata</i>	Frost
<i>Platypelis alticola</i>	Frost
<i>Platypelis barbouri</i>	Frost
<i>Platypelis cowanii</i>	Frost
<i>Platypelis grandis</i>	Frost
<i>Platypelis milloti</i>	Frost
<i>Platypelis occultans</i>	Duellman
<i>Platypelis pollicaris</i>	Frost
<i>Platypelis tsaratananaensis</i>	Frost
<i>Platypelis tuberculata</i>	Frost
<i>Platypelis tuberifera</i>	Frost
<i>Plethodontohyla alluaudi</i>	Frost
<i>Plethodontohyla bipunctatus</i>	Frost
<i>Plethodontohyla brevipes</i>	Frost
<i>Plethodontohyla coudreaui</i>	Frost
<i>Plethodontohyla guentherpetersi</i>	Frost
<i>Plethodontohyla inguinalis</i>	Frost
<i>Plethodontohyla laevipes</i>	Frost

<i>Plethodontohyla minutus</i>		Frost
<i>Plethodontohyla notosticta</i>		Frost
<i>Plethodontohyla ocellata</i>		Frost
<i>Plethodontohyla serratopalpebrosus</i>		Frost
<i>Plethodontohyla tuberosa</i>		Frost
<i>Scaphiophryne marmorata</i>		Frost
<i>Scaphiophryne brevis</i>		Duellman
<i>Scaphiophryne calcarata</i>		Frost
<i>Scaphiophryne gottlebei</i>		Duellman
<i>Scaphiophryne madagascariensis</i>		Frost
<i>Scaphiophryne obscura</i>		Frost
<i>Scaphiophryne pustulosa</i>		Frost
<i>Scaphiophryne verrucosa</i>		Frost
<i>Stumpffia grandis</i>		Frost
<i>Stumpffia psiloglossa</i>		Frost
<i>Stumpffia tetradactyla</i>	Nosy Boraha Island	Duellman
<i>Stumpffia tridactyla</i>		Frost
<b>Ranidae</b>		
<i>Tomopterna labrosa</i>		Frost
<b>Rhacophoridae</b>		
<i>Aglyptodactylus madagascariensis</i>		Frost
<i>Boophis albilabris</i>		Frost
<i>Boophis albipunctatus</i>		GLAW2
<i>Boophis ankaratra</i>		Andreone
<i>Boophis boehmei</i>		Duellman
<i>Boophis brachychir</i>		Duellman
<i>Boophis difficilis</i>		Frost
<i>Boophis elenae</i>		Andreone
<i>Boophis erythrodactylus</i>		Frost
<i>Boophis goudotii</i>		Frost
<i>Boophis granulatus</i>		Frost
<i>Boophis hillenii</i>		Frost
<i>Boophis idae</i>		Frost
<i>Boophis jaegeri</i>	Nosy Be	Duellman
<i>Boophis laurenti</i>		Frost
<i>Boophis luteus</i>		Frost
<i>Boophis madagascariensis</i>		Frost
<i>Boophis majori</i>		Frost
<i>Boophis mandraka</i>		Frost
<i>Boophis microtis</i>		Frost
<i>Boophis microtympanum</i>		Frost
<i>Boophis miniatus</i>		Frost
<i>Boophis opisthodon</i>		Frost
<i>Boophis pauliani</i>		Frost
<i>Boophis periegetes</i>		CADLE
<i>Boophis rappiodes</i>		Frost
<i>Boophis reticulatus</i>		Frost
<i>Boophis rhodoscelsis</i>		Frost
<i>Boophis rufiocularis</i>		GLAW5
<i>Boophis tephraeomystax</i>		Frost
<i>Boophis tephraeomystax</i>		GLAW3
<i>Boophis untersteini</i>		Frost
<i>Boophis viridis</i>		Frost
<i>Boophis williamsi</i>		Frost

## AVES

### ANSERIFORMES

#### Anatidae

<i>Anas bernieri</i>	SI&MO
<i>Anas melleri</i>	SI&MO
<i>Aythya innotata</i>	SI&MO

### APODIFORMES

#### Apodidae

<i>Apus balstoni</i>	SI&MO
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### CICONIIFORMES

#### Accipitridae

<i>Accipiter henstii</i>	SI&MO
<i>Accipiter madagascariensis</i>	SI&MO
<i>Aviceda madagascariensis</i>	SI&MO
<i>Buteo brachypterus</i>	SI&MO
<i>Eutriorchis astur</i>	SI&MO
<i>Haliaeetus vociferous</i>	SI&MO
<i>Polyboroides radiatus</i>	SI&MO

#### Ardeidae

<i>Ardea humbloti</i>	SI&MO
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#### Charadriidae

<i>Charadrius thoracicus</i>	SI&MO
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#### Falconidae

<i>Falco zoniventris</i>	SI&MO
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#### Glareolidae

<i>Glareola ocularis</i>	SI&MO
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#### Jacanidae

<i>Actophilornis albinucha</i>	SI&MO
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#### Podicipididae

<i>Tachybaptus rufolavatus</i>	SI&MO
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#### Podicipedidae

<i>Tachybaptus pelzelinii</i>	SI&MO
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#### Pteroclididae

<i>Pterocles personatus</i>	SI&MO
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#### Scolopacidae

<i>Gallinago macrodactyla</i>	SI&MO
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#### Sulidae

<i>Lophotibis cristata</i>	SI&MO
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### COLUMBIFORMES



Columbidae	
<i>Alectroenas madagascariensis</i>	SI&MO
CORACIIFORMES	
Alcedinidae	
<i>Ispidina madagascariensis</i>	SI&MO
Brachypteraciidae	
<i>Atelornis crossleyi</i>	SI&MO
<i>Atelornis pittoides</i>	SI&MO
<i>Brachypteracias leptosomus</i>	SI&MO
<i>Brachypteracias squamigera</i>	SI&MO
<i>Uratelornis chimaera</i>	SI&MO
CUCULIFORMES	
Cuculidae	
<i>Coua caerulea</i>	SI&MO
<i>Coua couquereli</i>	SI&MO
<i>Coua cristata</i>	SI&MO
<i>Coua cursor</i>	SI&MO
<i>Coua gigas</i>	SI&MO
<i>Coua reynaudii</i>	SI&MO
<i>Coua ruficeps</i>	SI&MO
<i>Coua serriana</i>	SI&MO
<i>Coua verreauxi</i>	SI&MO
<i>Cuculus rochii</i>	SI&MO
GALLIFORMES	
Phasianidae	
<i>Margaroperdix madagascarensis</i>	SI&MO
GRUIFORMES	
Mesitornithidae	
<i>Mesitornis unicolor</i>	SI&MO
<i>Mesitornis variegata</i>	SI&MO
<i>Monias benschi</i>	SI&MO
Rallidae	
<i>Amauornis olivieri</i>	SI&MO
<i>Canirallus kioloides</i>	SI&MO
<i>Rallus madagascariensis</i>	SI&MO
<i>Sarothrura watersi</i>	SI&MO
<i>Sowothrura insularis</i>	SI&MO
PASSERIFORMES	
Corvidae	
<i>Artamella viridis</i>	SI&MO
<i>Calicalius madagascariensis</i>	SI&MO
<i>Euryceros prevostii</i>	SI&MO
<i>Falcula palliata</i>	SI&MO
<i>Hypositta corallirostris</i>	SI&MO
<i>Leptopterus chabert</i>	SI&MO

<i>Oriolia bernieri</i>	SI&MO
<i>Pseudobias wardi</i>	SI&MO
<i>Schetba rufa</i>	SI&MO
<i>Tylas eduardi</i>	SI&MO
<i>Vanga curvirostris</i>	SI&MO
<i>Xenopirostris damii</i>	SI&MO
<i>Xenopirostris polleni</i>	SI&MO
<i>Xenopirostris xenopirostris</i>	SI&MO
Muscicapidae	
<i>Copsychus albospecularis</i>	SI&MO
<i>Pseudocossyphus bensoni</i>	SI&MO
<i>Pseudocossyphus inerinus</i>	SI&MO
<i>Pseudocossyphus sharpei</i>	SI&MO
Passeridae	
<i>Foudia madagascariensis</i>	SI&MO
<i>Foudia omissa</i>	SI&MO
<i>Lemuresthes nana</i>	SI&MO
<i>Motacilla flaviventris</i>	SI&MO
Philepittidae	
<i>Neodrepanis coruscans</i>	SI&MO
<i>Neodrepanis hypoxanthus</i>	SI&MO
<i>Philepitta castanea</i>	SI&MO
<i>Philepitta schlegeli</i>	SI&MO
Ploceidae	
<i>Ploceus nelicourvi</i>	SI&MO
<i>Ploceus sakalava</i>	SI&MO
Pycnonotidae	
<i>Phyllastrephus apperti</i>	SI&MO
<i>Phyllastrephus cinereiceps</i>	SI&MO
<i>Phyllastrephus madagascariensis</i>	SI&MO
<i>Phyllastrephus tenebrosus</i>	SI&MO
<i>Phyllastrephus zosterops</i>	SI&MO
Sturnidae	
<i>Saroglossa aurata</i>	SI&MO
Sylviidae	
<i>Acrocephalus newtoni</i>	SI&MO
<i>Amphilais seebohni</i>	SI&MO
<i>Bradypterus brunneus</i>	SI&MO
<i>Crossleyia xanthophrys</i>	SI&MO
<i>Cryptosylvicola randrianasoloi</i>	GOODMAN
<i>Mystacornis crossleyi</i>	SI&MO
<i>Neomixis flavoviridis</i>	SI&MO
<i>Neomixis striatigula</i>	SI&MO
<i>Neomixis tenella</i>	SI&MO
<i>Neomixis viridis</i>	SI&MO
<i>Newtonia amphichroa</i>	SI&MO
<i>Newtonia archboldi</i>	SI&MO
<i>Newtonia brunneicauda</i>	SI&MO
<i>Newtonia fanovanae</i>	SI&MO
<i>Oxylabes madagascariensis</i>	SI&MO

<i>Randia pseudozosterops</i>	SI&MO
<i>Thamnornis chloropetoides</i>	SI&MO
Vangidae	
<i>Calicalicus rufocarpalis</i>	Goodman2
<i>Hypositta perdita</i>	Peters2
PSITTACIFORMES	
Psittacidae	
<i>Agapornis canus</i>	SI&MO
STRIGIFORMES	
Caprimulgidae	
<i>Caprimulgus enarratus</i>	SI&MO
Strigidae	
<i>Asio madagascariensis</i>	SI&MO
<i>Ninox superciliaris</i>	SI&MO
Tytonidae	
<i>Tyto soumagnei</i>	SI&MO
TURNICIFORMES	
Turnicidae	
<i>Turnix nigricollis</i>	SI&MO
MAMMALIA	
CARNIVORA	
Herpestidae	
<i>Galidea elegans</i>	C&H3
<i>Galidictis fasciata</i>	C&H3
<i>Galidictis grandidieri</i>	C&H3
<i>Mungotictis decemlineata</i>	C&H3
<i>Salanoia concolor</i>	C&H3
Viverridae	
<i>Cryptoprocta ferox</i>	C&H3
<i>Eupleres goudotii</i>	C&H3
<i>Fossa fossana</i>	C&H3
CHIROPTERA	
Emballonuridae	
<i>Emballonura atrata</i>	C&H3
Molossidae	
<i>Mormopterus jugularis</i>	C&H3
Myzopodidae	
<i>Myzopoda aurita</i>	C&H3
Pteropodidae	



<i>Eidolon dupreanum</i>	W&R
<i>Pteropus rufus</i>	C&H3
<i>Rousettus madagascariensis</i>	C&H3

Vespertilionidae	
<i>Scotophilus robustus</i>	C&H3

## INSECTIVORA

Tenrecidae	
<i>Echinops telfairi</i>	C&H3
<i>Geogale aurita</i>	C&H3
<i>Hemicentetes semispinosus</i>	C&H3
<i>Limnogale mergulus</i>	C&H3
<i>Microgale brevicaudata</i>	C&H3
<i>Microgale cowani</i>	C&H3
<i>Microgale dobsoni</i>	C&H3
<i>Microgale dryas</i>	W&R
<i>Microgale gracilis</i>	C&H3
<i>Microgale gymnorhyncha</i>	JENKINS2
<i>Microgale longicaudata</i>	C&H3
<i>Microgale melanorrhachis</i>	JENKINS2
<i>Microgale parvula</i>	C&H3
<i>Microgale principula</i>	C&H3
<i>Microgale pulla</i>	C&H3
<i>Microgale pusilla</i>	C&H3
<i>Microgale soricoides</i>	JENKINS
<i>Microgale taiva</i>	JENKINS2
<i>Microgale talazaci</i>	C&H3
<i>Microgale thomasi</i>	C&H3
<i>Oryzorictes hova</i>	C&H3
<i>Oryzorictes talpoides</i>	C&H3
<i>Oryzorictes tetradactylus</i>	C&H3
<i>Setifer setosus</i>	C&H3

## PRIMATES

Cheirogaleidae	
<i>Allocebus trichotis</i>	C&H3
<i>Cheirogaleus major</i>	C&H3
<i>Cheirogaleus medius</i>	C&H3
<i>Microcebus coquereli</i>	C&H3
<i>Microcebus murinus</i>	C&H3
<i>Microcebus rufus</i>	C&H3
<i>Phaner furcifer</i>	C&H3

Daubentoniidae	
<i>Daubentonia madagascariensis</i>	C&H3

Indridae	
<i>Avahi laniger</i>	C&H3
<i>Indri indri</i>	C&H3
<i>Propithecus diadema</i>	C&H3
<i>Propithecus tattersalli</i>	C&H3
<i>Propithecus verreauxi</i>	C&H3

## Lemuridae

<i>Eulemur coronatus</i>	C&H3
<i>Eulemur macaco</i>	C&H3
<i>Eulemur rubiventer</i>	C&H3
<i>Haplemur aureus</i>	C&H3
<i>Haplemur griseus</i>	C&H3
<i>Haplemur simus</i>	C&H3
<i>Lemur catta</i>	C&H3
<i>Varecia variegata</i>	C&H3

#### Megaladapidae

<i>Lepilemur dorsalis</i>	W&R
<i>Lepilemur edwardsi</i>	W&R
<i>Lepilemur leucopus</i>	W&R
<i>Lepilemur microdon</i>	W&R
<i>Lepilemur mustelinus</i>	C&H3
<i>Lepilemur ruficaudatus</i>	W&R
<i>Lepilemur septentrionalis</i>	W&R

#### RODENTIA

##### Muridae

<i>Brachytarsomys albicauda</i>	C&H3
<i>Brachytarsomys villosa</i>	GLAW
<i>Brachyuromys betsileoensis</i>	C&H3
<i>Brachyuromys ramirohitra</i>	C&H3
<i>Eliurus ellermani</i>	Carle
<i>Eliurus majori</i>	W&R
<i>Eliurus minor</i>	C&H3
<i>Eliurus myoxinus</i>	C&H3
<i>Eliurus penicillatus</i>	W&R
<i>Eliurus petteri</i>	Carle
<i>Eliurus tanala</i>	W&R
<i>Eliurus webbi</i>	W&R
<i>Gymnuromys roberti</i>	C&H3
<i>Hypogeomys antimena</i>	C&H3
<i>Macrotarsomys bastardi</i>	C&H3
<i>Macrotarsomys ingens</i>	C&H3
<i>Nesomys rufus</i>	C&H3

#### REPTILIA

##### SAURIA

##### Chamaeleonidae

<i>Brookesia ambreensis</i>	RAXWORTH
<i>Brookesia antakarana</i>	RAXWORTH
<i>Brookesia antoetrae</i>	GLAW
<i>Brookesia bekolosy</i>	RAXWORTH
<i>Brookesia betschi</i>	GLAW
<i>Brookesia bonisi</i>	GLAW
<i>Brookesia brygooi</i>	RAXWORTH
<i>Brookesia decaryi</i>	Welch
<i>Brookesia dentata</i>	Welch
<i>Brookesia ebenauui</i>	Welch
<i>Brookesia griveaudi</i>	GLAW
<i>Brookesia karchei</i>	GLAW
<i>Brookesia lambertoni</i>	GLAW

<i>Brookesia legendrei</i>	GLAW
<i>Brookesia lineata</i>	RAXWORTH
<i>Brookesia lolontany</i>	RAXWORTH
<i>Brookesia minima</i>	Welch
<i>Brookesia nasus</i>	Welch
<i>Brookesia perarmata</i>	Welch
<i>Brookesia peyrierasi</i>	GLAW
<i>Brookesia ramanantsoai</i>	GLAW
<i>Brookesia stumpfii</i>	Welch
<i>Brookesia superciliaris</i>	Welch
<i>Brookesia therezieni</i>	GLAW
<i>Brookesia thieli</i>	GLAW
<i>Brookesia tuberculata</i>	Welch
<i>Brookesia vadoni</i>	GLAW
<i>Brookesia valerieae</i>	GLAW
<i>Chamaeleo antimena</i>	Welch
<i>Chamaeleo boettgeri</i>	Welch
<i>Chamaeleo brevicornis</i>	Welch
<i>Chamaeleo campani</i>	Welch
<i>Chamaeleo cucullatus</i>	Welch
<i>Chamaeleo fallax</i>	Welch
<i>Chamaeleo furcifer</i>	Welch
<i>Chamaeleo gallus</i>	Welch
<i>Chamaeleo gastrotaenia</i>	Welch
<i>Chamaeleo globifer</i>	Welch
<i>Chamaeleo guibei</i>	Welch
<i>Chamaeleo lateralis</i>	Welch
<i>Chamaeleo linotus</i>	Welch
<i>Chamaeleo minor</i>	Welch
<i>Chamaeleo monoceras</i>	Welch
<i>Chamaeleo nasutus</i>	Welch
<i>Chamaeleo oshaughnessyi</i>	Welch
<i>Chamaeleo oustaleti</i>	Welch
<i>Chamaeleo rhinocerotus</i>	Welch
<i>Chamaeleo verrucosus</i>	Welch
<i>Chamaeleo willsii</i>	Welch
 Cordylidae	
<i>Tracheloptychus madagascariensis</i>	Welch
<i>Tracheloptychus petersi</i>	Welch
<i>Zonosaurus aeneus</i>	Welch
<i>Zonosaurus boettgeri</i>	Welch
<i>Zonosaurus karsteni</i>	Welch
<i>Zonosaurus laticaudatus</i>	Welch
<i>Zonosaurus maximus</i>	Welch
<i>Zonosaurus ornatus</i>	Welch
<i>Zonosaurus quadrilineatus</i>	Welch
<i>Zonosaurus rufipes</i>	Welch
<i>Zonosaurus trilineatus</i>	Welch
 Gekkonidae	
<i>Ailuronyx trachygaster</i>	Welch
<i>Geckolepis anomala</i>	Welch
<i>Geckolepis petiti</i>	Welch
<i>Geckolepis polylepsis</i>	Welch
<i>Geckolepis typica</i>	Welch
<i>Homopholis boivini</i>	Welch



<i>Lygodactylus arnoulti</i>	Welch
<i>Lygodactylus blanci</i>	Welch
<i>Lygodactylus decaryi</i>	Welch
<i>Lygodactylus expectatus</i>	Welch
<i>Lygodactylus heterurus</i>	Welch
<i>Lygodactylus klemmeri</i>	Welch
<i>Lygodactylus madagascariensis</i>	Welch
<i>Lygodactylus miops</i>	Welch
<i>Lygodactylus montanus</i>	Welch
<i>Lygodactylus ornatus</i>	Welch
<i>Lygodactylus pictus</i>	Welch
<i>Lygodactylus septemtuberculatus</i>	Welch
<i>Lygodactylus tolampyae</i>	Welch
<i>Lygodactylus tuberosus</i>	Welch
<i>Lygodactylus verticillatus</i>	Welch
<i>Paragehyra petiti</i>	Welch
<i>Paroedura androyensis</i>	Welch
<i>Paroedura bastardi</i>	Welch
<i>Paroedura gracilis</i>	Welch
<i>Paroedura guibeae</i>	Welch
<i>Paroedura homalorhinus</i>	Welch
<i>Paroedura oviceps</i>	Welch
<i>Paroedura pictus</i>	Welch
<i>Phelsuma antanosy</i>	GLAW
<i>Phelsuma barbouri</i>	Welch
<i>Phelsuma bimaculata</i>	Welch
<i>Phelsuma flavigularis</i>	Welch
<i>Phelsuma guttata</i>	Welch
<i>Phelsuma mutabilis</i>	Welch
<i>Phelsuma pronki</i>	Seipp
<i>Phelsuma quadriocellata</i>	Welch
<i>Phelsuma serraticauda</i>	Welch
<i>Phelsuma standingi</i>	Welch
<i>Phelsuma trilineata</i>	Welch
<i>Phyllodactylus brevipes</i>	Welch
<i>Uroplatus alluaudi</i>	Welch
<i>Uroplatus eburnei</i>	Welch
<i>Uroplatus fimbriatus</i>	Welch
<i>Uroplatus guentheri</i>	Welch
<i>Uroplatus lineatus</i>	Welch
<i>Uroplatus malahelo</i>	NUSS3
<i>Uroplatus malama</i>	Nussbaum
<b>Iguanidae</b>	
<i>Chalarodon madagascariensis</i>	Welch
<i>Oplurus cyclurus</i>	Welch
<i>Oplurus fierinensis</i>	Welch
<i>Oplurus grandidieri</i>	Welch
<i>Oplurus quadrimaculatus</i>	Welch
<i>Oplurus saxicola</i>	Welch
<b>Scincidae</b>	
<i>Amphiglossus andranovahensis</i>	Welch
<i>Amphiglossus ankodabensis</i>	Welch
<i>Amphiglossus anosyensis</i>	GLAW
<i>Amphiglossus ardouini</i>	Welch
<i>Amphiglossus astrolabi</i>	Welch

<i>Amphiglossus crenni</i>	Welch
<i>Amphiglossus decaryi</i>	Welch
<i>Amphiglossus elongatus</i>	Welch
<i>Amphiglossus frontoparietalis</i>	Welch
<i>Amphiglossus gastrostictus</i>	Welch
<i>Amphiglossus igneocaudatus</i>	Welch
<i>Amphiglossus intermedius</i>	Welch
<i>Amphiglossus macrocercus</i>	Welch
<i>Amphiglossus macrolepis</i>	Welch
<i>Amphiglossus mandokava</i>	GLAW
<i>Amphiglossus melanopleura</i>	Welch
<i>Amphiglossus melanurus</i>	Welch
<i>Amphiglossus minutus</i>	GLAW
<i>Amphiglossus mouroundavae</i>	Welch
<i>Amphiglossus ornaticeps</i>	Welch
<i>Amphiglossus poecilopus</i>	Welch
<i>Amphiglossus polleni</i>	Welch
<i>Amphiglossus praeornatus</i>	Welch
<i>Amphiglossus punctatus</i>	GLAW
<i>Amphiglossus splendidus</i>	Welch
<i>Amphiglossus trilineatus</i>	Welch
<i>Amphiglossus vulsini</i>	Welch
<i>Amphiglossus waterloti</i>	Welch
<i>Cryptoblepharus cognatus</i>	Welch
<i>Cryptoblepharus gloriosus</i>	Welch
<i>Cryptoblepharus voeltzkowi</i>	Welch
<i>Cryptoposcincus minimus</i>	Welch
<i>Grandidierina fierinensis</i>	Welch
<i>Grandidierina lineatus</i>	Welch
<i>Grandidierina petiti</i>	Welch
<i>Grandidierina rubrocaudata</i>	Welch
<i>Mabuya aureopunctata</i>	Welch
<i>Mabuya betsileana</i>	Welch
<i>Mabuya boettgeri</i>	Welch
<i>Mabuya elegans</i>	Welch
<i>Mabuya gravenhorstii</i>	Welch
<i>Mabuya madagascariensis</i>	Welch
<i>Mabuya sakalava</i>	Welch
<i>Mabuya vatos</i>	NUSS5
<i>Malacontius hildebrandtii</i>	Welch
<i>Malacontius holomelas</i>	Welch
<i>Paracontias brocchii</i>	Welch
<i>Paracontias milloti</i>	Welch
<i>Paracontias rothschildi</i>	Welch
<i>Pseudocontias madagascariensis</i>	Welch
<i>Pygomeles braconnieri</i>	Welch
<i>Pygomeles petteri</i>	Welch
<i>Pygomeles trivittatus</i>	Welch
<i>Voeltzkowia mira</i>	Welch

## SERPENTES

Colubridae	
<i>Alluaudina bellyi</i>	Welch
<i>Alluaudina mocquardi</i>	Welch
<i>Compsophis albiventris</i>	Welch
<i>Dromicodryas bernieri</i>	Welch

<i>Dromicodryas quadrilineatus</i>	Welch
<i>Geodipsas boulengeri</i>	Welch
<i>Geodipsas heimi</i>	Welch
<i>Geodipsas infralineata</i>	Welch
<i>Heteroliodon torquatus</i>	Welch
<i>Langaha alluaudi</i>	Welch
<i>Langaha nasuta</i>	Welch
<i>Lioheterodon geayi</i>	Welch
<i>Lioheterodon madagascariensis</i>	Welch
<i>Lioheterodon modestus</i>	Welch
<i>Liophidium rhodogaster</i>	Welch
<i>Liophidium torquatus</i>	Welch
<i>Liophidium trilineatum</i>	Welch
<i>Liopholidophis grandidieri</i>	Welch
<i>Liopholidophis lateralis</i>	Welch
<i>Liopholidophis pinguis</i>	Welch
<i>Liopholidophis pseudolateralis</i>	Welch
<i>Liopholidophis sexlineatus</i>	Welch
<i>Lygodryas arctifasciatus</i>	Welch
<i>Lygodryas betsileanus</i>	Welch
<i>Lygodryas guentheri</i>	Welch
<i>Lygodryas inornatus</i>	Welch
<i>Lygodryas maculatus</i>	Welch
<i>Lygodryas variabilis</i>	Welch
<i>Madagascarophis colubrina</i>	Welch
<i>Micropisthodon ochraceus</i>	Welch
<i>Mimophis mahafalensis</i>	Welch
<i>Pararhadinea melanogaster</i>	Welch
<i>Pseudoxyrhopus ambreensis</i>	Welch
<i>Pseudoxyrhopus ankafinaensis</i>	RAXWORTH2
<i>Pseudoxyrhopus dubius</i>	Welch
<i>Pseudoxyrhopus heterurus</i>	Welch
<i>Pseudoxyrhopus inerinae</i>	Welch
<i>Pseudoxyrhopus kely</i>	RAXWORTH2
<i>Pseudoxyrhopus microps</i>	Welch
<i>Pseudoxyrhopus occipitalis</i>	Welch
<i>Pseudoxyrhopus punctatus</i>	Welch
<i>Pseudoxyrhopus quinquelineatus</i>	Welch
<i>Pseudoxyrhopus sokosoko</i>	RAXWORTH2
<i>Pseudoxyrhopus tritaeniatus</i>	Welch
Hydrophiidae	
<i>Enhydrina schistosa</i>	Welch
Typhlopidae	
<i>Acrantophis madagascariensis</i>	Welch
<i>Sanzinia madagascariensis</i>	Welch
<i>Typhlops arenarius</i>	Welch
<i>Typhlops decorsei</i>	Welch
<i>Typhlops grandidieri</i>	Welch
<i>Typhlops madagascariensis</i>	Welch
<i>Typhlops mucronatus</i>	Welch
<i>Typhlops ocellaris</i>	Welch
<i>Typhlops reuteri</i>	Welch

## TESTUDINES

Pelomedusidae	
<i>Erymnochelys madagascariensis</i>	Ivers
Testudinidae	
<i>Geochelone radiata</i>	Ivers
<i>Geochelone yniphora</i>	Ivers
<i>Pyxis arachnoides</i>	Ivers
<i>Pyxis planicauda</i>	Ivers



**Mauritius**

Taxon	Island	Source Code
AVES		
CICONIIFORMES		
Falconidae		
<i>Falco punctatus</i>		SI&MO
COLUMBIFORMES		
Columbidae		
<i>Columba mayeri</i>		SI&MO
PASSERIFORMES		
Corvidae		
<i>Coracina typica</i>		SI&MO
<i>Terpsiphone bourbonnensis</i>		SI&MO
Passeridae		
<i>Foudia flavicans</i>	Rodrigues	SI&MO
<i>Foudia rubra</i>		SI&MO
Sylviidae		
<i>Bebornis rodericanus</i>	Rodrigues	SI&MO
Zosteropidae		
<i>Zosterops chloronothos</i>		SI&MO
PSITTACIFORMES		
Psittacidae		
<i>Psittacula echo</i>		SI&MO
MAMMALIA		
CHIROPTERA		
Pteropodidae		
<i>Pteropus niger</i>	Mauritius	SMICK
<i>Pteropus rodricensis</i>		W&R
REPTILIA		
SAURIA		
Gekkonidae		
<i>Nactus coindemirensis</i>	Gunner's Quoin	BAB
<i>Nactus serpensinsula</i>		
<i>Phelsuma guentheri</i>	Round	
<i>Phelsuma guimbeaui</i>	Mauritius	
Scincidae		

<i>Leiopisma telfairii</i>	Round	Welch
<i>Scelotes bojeri</i>		
SERPENTES		
Bolyeriidae		
<i>Bolyeria multocarinata</i>	Round	Welch
<i>Casarea dussumieri</i>	Round	WELCH

Réunion

Taxon	Island	Source Code
AVES		
CICONIIFORMES		
Procellariidae		
<i>Pterodroma aterrima</i>	Réunion	SI&MO
PASSERIFORMES		
Corvidae		
<i>Coracina newtoni</i>	Réunion	SI&MO
Muscicapidae		
<i>Saxicola tectes</i>	Réunion	SI&MO
Zosteropidae		
<i>Zosterops olivaceus</i>	Réunion	SI&MO
REPTILIA		
SAURIA		
Gekkonidae		
<i>Lygodactylus insularis</i>	Juan de Nova	Welch
Scincidae		
<i>Cryptoblepharus bitaeniatus</i>	Europa	Welch
<i>Cryptoblepharus caudatus</i>	Juan de Nova	Welch

Seychelles

Taxon	Island	Source Code
AMPHIBIA		
ANURA		
Hyperoliidae		
<i>Tachycinemis seychellensis</i>		Frost
Sooglossidae		
<i>Nesomantis thomasseti</i>		Frost
<i>Sooglossus gardinieri</i>		Frost
<i>Sooglossus sechellensis</i>		Frost
GYMNOPHIONA		
Caeciliidae		
<i>Grandisonia alternans</i>		Frost
<i>Grandisonia brevis</i>		Frost
<i>Grandisonia diminutiva</i>	Praslin	Frost
<i>Grandisonia larvata</i>		Frost
<i>Grandisonia sechellensis</i>		Frost
<i>Hypogeophis rostratus</i>		Frost
<i>Praslinia cooperi</i>		Frost
AVES		
APODIFORMES		
Apodidae		
<i>Collocalia elaphra</i>		SI&MO
CICONIIFORMES		
Falconidae		
<i>Falco araea</i>		SI&MO
COLUMBIFORMES		
Columbidae		
<i>Alectroenas pulcherrima</i>		SI&MO
PASSERIFORMES		
Corvidae		
<i>Dicrurus aldabranus</i>	Aldabra	SI&MO
Muscicapidae		
<i>Copsychus sechellarum</i>	Frigate	SI&MO
Nectariniidae		
<i>Nectarinia dussumieri</i>		SI&MO
Passeridae		



<i>Foudia sechellarum</i>		SI&MO
Pycnonotidae		
<i>Hypsipetes crassirostris</i>		SI&MO
Sylviidae		
<i>Bebrornis sechellensis</i>	Cousin	SI&MO
<i>Nesillas aldabrana</i>	Aldabra	SI&MO
Zosteropidae		
<i>Zosterops modestus</i>	Mahe	SI&MO
MAMMALIA		
CHIROPTERA		
Emballonuridae		
<i>Coleura seychellensis</i>		W&R
Pteropodidae		
<i>Pteropus aldabrensis</i>	Aldabra	W&R
REPTILIA		
SAURIA		
Chamaeleonidae		
<i>Chamaeleo tigris</i>		Welch
Gekkonidae		
<i>Ailuronyx seychellensis</i>		Welch
<i>Phelsuma astriata</i>		Welch
<i>Phelsuma sundbergi</i>		Cheke
<i>Urocotyledon inexpectata</i>		Kluge
Scincidae		
<i>Cryptoblepharus aldabrae</i>	Aldabra	Welch
<i>Mabuya sechellensis</i>		Cheke
<i>Mabuya wrightii</i>		Welch
<i>Scelotes braueri</i>		Cheke
<i>Scelotes gardineri</i>		Cheke
SERPENTES		
Colubridae		
<i>Boaedon geometricus</i>		Nuss1
<i>Scopelophis seychellensis</i>		DOWL90
TESTUDINES		
Pelomedusidae		
<i>Pelusios seychellensis</i>		Iver2
Testudinidae		
<i>Geochelone gigantea</i>		Ivers

## **Coastal and marine protected areas in the west Indian ocean**

### **Sources of information**

Information on nationally and internationally designated marine and coastal protected areas have been compiled for five countries of West Indian Ocean: Comoros, Madagascar, Mauritius, Réunion, and Seychelles. Main sources of information are the Protected Areas and Landscape Database and the Biodiversity Map Library at WCMC.

## Nationally designated coastal and marine protected areas in the west Indian ocean

Legal designation Site name	IUCN Category	Latitude/Longitude	Area (ha)	Year
<i>Comoros</i>				
There are no officially designated protected areas.				
<i>Madagascar</i>				
National Park				
Mananara Marine	II	16°19'S/49°51'E	1,000	1989
Mananara Terrestrial	II	16°14'S/49°45'E	23,000	1990
Special Reserve				
Bemarivo	IV	17°00'S/44°20'E	11,570	1956
Cap Sainte Marie	IV	25°36'S/45°09'E	1,750	1962
Manongarivo	IV	14°10'S/48°00'E	35,250	1956
Nosy Mangabe	IV	15°25'S/49°45'E	520	1965
<i>Mauritius</i>				
Fishing Reserve				
Black River	IV	20°21'S/57°21'E	900	1983
Flacq	IV	20°08'S/57°44'E	600	1983
Grand Port - Mahebourg	IV	20°22'S/57°42'E	2,200	1983
Port Louis	IV	20°08'S/57°28'E	500	1983
Riviere du Rampart - Poudre d'Or	IV	20°04'S/57°42'E	3,500	1983
Trou d'Eau Douce Fir	IV	20°15'S/57°47'E	700	1983
Nature Reserve				
Coin de Mire (Gunner's Quoin)	IV	19°56'S/57°36'E	76	1970
Grande Montagne	IV	19°42'S/63°27'E	14	1987
Ile aux Aigrettes	IV	20°24'S/57°43'E	25	1965
Ile aux Cocos	IV	19°43'S/63°17'E	15	1981
Ile aux Serpents	Ia	19°48'S/57°47'E	31	1983
Ile Plate (Flat Island)	IV	19°52'S/57°38'E	253	1972
Ile Ronde (Round Island)	IV	19°50'S/57°46'E	159	1957
Ilot Gabriel	IV	19°52'S/57°39'E	42	1972

Ilot Marianne	IV	20°22'S/57°47'E	2 1972
<i>Réunion</i>			
Fishing Reserve			
Cap la Houssaye-Ravine Trois Bassins	VI	??	? 1978
L'Etang		??	? 1992
Pointe de Bretagne-Pointe de l'Etang Sale	VI	??	? 1978
Ravine Trois Bassins-Pointe de Bretagne	VI	??	? 1978
Saint-Leu		21°09'S/055°15'E	? 1992
Saline l'Hermintage (lagoon)		??	? 1992
Saline L'Hermintage (Reef)		??	? 1992
St Pierre		21°18'S/055°27'E	? 1992
Nature Reserve			
Ile Tromelin	IV	16°00'S/54°00'E	? 1975
Iles Glorieuses	IV	10°00'S/48°00'E	? 1975
Ilot d'Europa	IV	22°00'S/40°00'E	? 1975
Ilot de Bassas Da India	IV	21°50'S/40°00'E	? 1975
Mare Longue-St-Philippe	IV	21°20'S/55°45'E	68 1981
<i>Seychelles</i>			
Marine National Park			
Baie Ternaie	II	4°37'S/55°22'E	80 1979
Curieuse	II	4°17'S/55°43'E	1,470 1979
Port Launay	II	4°39'S/55°22'E	158 1979
Silhouette	II	4°30'S/55°14'E	3,045 1987
St. Anne	II	4°34'S/55°30'E	1,423 1973
National Park			
Morne Seychellois	II	4°39'S/55°25'E	3,045 1979
Praslin	II	4°20'S/55°44'E	675 1979
Nature Reserve			
Beacon Island	VI	4°36'S/55°31'E	1 1966
Booby or Ils aux Fous	VI	4°15'S/55°30'E	? 1966
Boudeuse	VI	6°05'S/52°52'E	1 1966
Etoile	VI	5°53'S/53°01'E	1 1966
Ile au Vauche	VI	4°41'S/55°26'E	4 1966
Les Mamelles	VI	4°28'S/55°32'E	8 1966
Special Nature Reserve			
Aldabra	Ia	9°25'S/46°25'E	35,000 1981
Aride Island	Ia	4°08'S/55°40'E	70 1973
Cousin Island	Ia	4°19'S/55°39'E	28 1975





**Internationally coastal and marine designated protected areas in the west Indian ocean**

Country, designation and a site name		Latitude/Longitude
<i>Comoros</i>		
Ramsar (Wetlands) Convention	Lake Dziani Boudouni	11°30'S/043°45'E
<i>Madagascar</i>		
UNESCO-MAB Biosphere Reserves	Réserve de la biosphère du Mananara Nord	16°10'S/49°30'E
<i>Seychelles</i>		
World Heritage Convention	Aldabra Atoll	9°25'S/46°25'E
	Vallée de Mai Nature Reserve	4°19'S/55°43'E

## **Sitesheets of some nationally designated coastal and marine protected areas in the west Indian ocean**

### ***Madagascar***

Réserve spéciale de Nosy Mangabé Special Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.3.1 (Malagasy Rain Forest)

Geographical Location A small island situated to the east of Maroantsetra, 6 km off the coast of Madagascar, in the Bay of Antogil. 15°25'S, 49°45'E.

Date and History of Establishment 14 December 1965 by Decree No. 65-795.

Area 520ha (the whole island)

Land Tenure Government

Altitude From sea level to 331m

Physical Features The island is composed of Cretaceous limestone, with a very rugged topography and rapid changes of altitude over relatively short distances.

Climate No information

Vegetation The vegetation comprises typical east coast rain forest, including species of *Canarium*, *Ocotea* and *Ravenala*, along with many palms and ferns. Much of the forest is secondary.

Fauna The reserve was established to protect the aye-aye *Daubentonia madagascariensis* (E), which has recently been introduced to the island. Amphibians in the reserve include the Antongil frog *Dyscophus antongili*, a scarlet frog confined to a small area in the Antongil Bay region, and *Boophis leucomaculatus* known only from the type specimen collected from the island. One chameleon *Brookesia peyrieresi* is also only known from Nosy Mangabé. Four other lemur species occur, namely ruffed-lemur *Varecia variegata*, russet mouse-lemur *Microcebus rufus*, greater dwarf lemur *Cheirogaleus major*, and brown lemur *Lemur fulvus*.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities The reserve will be opened to the public if authorisation is obtained from the 'Direction des Eaux et Forêts' at Tananarive.

Scientific Research and Facilities Several attempts have been made to introduce the aye-aye to the island; nine individuals were released in 1967, and 12 in 1971, and the most recent sighting was in March 1983, when a female and her young were seen. Introduction of aye-aye. Censuses of the aye-aye and Antongil frog have been recommended.

There is a small laboratory on the island which is undergoing repair.

Conservation Value No information

Conservation Management Total. Access is not restricted by the establishing decree.

None

The island is the focus for IUCN/WWF Project 1953 which will help to ensure the protection and survival of the aye-aye together with its habitat through the provision of a boat and the construction of a building for the warden. A laboratory had already been built before the WWF Representation was established. It needs repair and some interior arrangement. Work has not yet begun (1984) because of difficulties on the road from Tamatave to Maroantsetra as well as a shortage of building materials. A boat with outboard motor has arrived. A guard to patrol the island will be recruited by the 'Direction des Eaux et Forêts'. Native plant species may be planted to enhance the habitat for the aye-aye, and other endangered lemurs may be introduced. Funds will also cover the maintenance of paths and provide a small rest hut for visitors. In association with the project is an environmental education programme; a film has been made on Nosy Mangabé and will be shown in cinemas and on television.

Management Constraints The island can only support limited tourism, which should be strictly controlled. There is a manned lighthouse on the island, and a 'public works' shop.

Staff Two agents and two auxiliaries

Budget Salaries are paid by the Government. WWF Funding 1982/1983 - US\$2,219.

Local Addresses

No information

References

IUCN/WWF Project 1953. Study and protection of the aye-aye, Nosy Mangabé.

Date 1986

## ***Mauritius***

Black River Fishing Reserve

IUCN Management Category VIII (Multiple Use Management Area)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location Off the West coast of Mauritius around the estuary of the Black River. Boundaries are marked by high water mark, Petit Vacoas and Point Lascars. From Point Lascars, the boundary goes straight to Grand Pointe and from there in a straight line to the southern extremity of Point des Requins. 20°22'S, 57°20'E.

Date and History of Establishment 2 February 1983 by Government Notice No. 18

Area 900ha

Land Tenure Government

Altitude Sea level



**Physical Features** The reserve includes both Black River and Case Royale. The marine area comprises a lagoon environment, coral patches and reefs, and sandy areas. The terrestrial zone is covered by sandy beaches, rocky shores, and mangrove stands.

**Climate** No information

**Vegetation** There are various species of seaweed, notably *Ulva cuchemia*, *Enteromorpha*, and sea grass *Gracilaria* and *Chaetomorpha*. There are mangrove stands along the coast.

**Fauna** All commercially exploited species are well represented. It is a good nursery area for mullet *Mugil cephalus* and *M. sebeli*, crab and oysters.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** Fish stock assessment (not restricted to reserve)

The Fisheries Research Centre is situated a few kilometers to the north.

**Conservation Value** No information

**Conservation Management** The Fisheries Act 1980 prohibits the use of large net or gill net fishing.

None

**Management Constraints** There is hotel development along the coast, boating activities and illegal fishing. Silt deposit appears to be extensive.

**Staff** Three fisheries assistants are based at an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

**Budget** No specific budget is allocated; recurrent expenditure and salaries are met from a budget allocated to both Fisheries Research and Protection Service i.e. Rs.8.3 million.

**Local Addresses**

Protection Service, Fisheries Division

**References**

Fisheries Act 1980.

Fisheries Regulations in Government Notice No. 18 of 1983.

**Date** July 1983

**Flacq Fishing Reserve**

**IUCN Management Category** VIII (Multiple Use Management Area)

**Biogeographical Province** 3.25.13 (Mascarene Islands)

**Geographical Location** Off the eastern coast of Mauritius. Boundaries are marked by high water mark and a line drawn from point La Brise at Post Lafayette to Pointe de Flacq. 20°9'S, 57°45'E.

**Date and History of Establishment** 2 February 1983 by Government Notice No. 18

**Area** 600ha

**Land Tenure** Government

**Altitude** Sea level

**Physical Features** The reserve comprises a lagoon, with a sandy and rocky bottom, and coral reefs. There are numerous mud flats and sand banks, some with rocky outcrops and the reserve also includes a barachois (fish pond).

**Climate** No information

**Vegetation** Vegetation comprises mangroves along much of the coast, and on islets, some marshy areas, and sea grass and algal beds on the shallow edges of the lagoon.

**Fauna** All commercially exploited species are well represented. The reserve provides large nursery areas for mullet *Mugil cephalus* and *M. sebeli*, siganids, letrínids, and goatfish (*Mullidae*). The crab *Scylla serrata* and many species of prawns also occur. Knowledge of smaller taxa is generally lacking.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** Fish stock assessment (not restricted to the reserve)

None

**Conservation Value** No information

**Conservation Management** The Fisheries Act 1980 prohibits large net or gill net fishing.

None

**Management Constraints** Hotel development, boating activities, illegal fishing

**Staff** Three fisheries assistants are based at an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

**Budget** No specific budget is allocated; recurrent expenditure and salaries are met from a budget allocated to both Fisheries Research and Protection Service i.e. Rs.8.3 million.

**Local Addresses**

Protection Service; Fisheries Division

**References**

Fisheries Act 1980.

Fisheries Regulations in Government Notice No. 18 of 1983.

Date July 1983

Grand Port-Mahebourg Fishing Reserve

IUCN Management Category VIII (Multiple Use Management Area)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location South-east coast of Mauritius around the port of Mahebourg. Boundaries are marked by high water mark and a straight line drawn from Old Grand Port to the eastern point of Ile aux Aigrettes, then along the reefs to the islet of Le Broudou. 15°23'S, 57°42'E.

Date and History of Establishment 2 February 1983 by Government Notice No. 18

Area 2,200ha

Land Tenure Government

Altitude Sea level

Physical Features The reserve comprises a lagoon with a sandy and rocky bottom, coral patches and reefs, inter-tidal zone covered by sandy beaches, and rocky shores. In some areas, the inter-tidal zone is occupied by cliffed shores and eroded eolianite deposits.

Climate No information

Vegetation There are patches of mangroves and ferns in some areas and dense stands of mangroves on mud flats near the upper limits of the inter-tidal zone. Various species of seaweeds and algae occur, e.g. *Ulva*, *Cuchemia*, *Entomorpha*, and *Chaetomorpha*.

Fauna All commercially exploited species are well represented. The reserve provides large nursery areas for mullet *Mugil cephalus* and *M. sebeli*, rabbitfish (Siganidae), scavenger fish (Lethrinidae), and goatfish (Mullidae). The crab *Scylla serrata* and many species of prawns also occur. Knowledge of smaller taxa generally lacking.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities Fish stock assessment (not restricted to the reserve)

Mahebourg Fish Farm (83ha) has a laboratory and aquaria facilities.

Conservation Value No information

Conservation Management The Fisheries Act 1980 prohibits the use of large net or gill net fishing.

None

Management Constraints During heavy rains and cyclones, there is siltation of lagoon. Illegal fishing is a problem.

**Staff** Three fisheries assistants are based at an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

**Budget** No specific budget is allocated; recurrent expenditure and salaries are met from budget allocated to both Fisheries Research and Protection Service i.e. Rs.8.3 million.

**Local Addresses**

Protection Service; Fisheries Division

**References**

Fisheries Act 1980.

Fisheries regulations in Government Notice No. 18 of 1983.

**Date** July 1983

**Port Louis Fishing Reserve**

**IUCN Management Category** VIII (Multiple Use Management Area)

**Biogeographical Province** 3.25.13 (Mascarene Islands)

**Geographical Location** Off the north-west coast of Mauritius around Port Louis. Boundaries are marked by high water mark and a line drawn from the Martello Tower at Pointe aux Sables to a point due west on the reefs and from Point Tortue in a straight line to the most westerly point at Fort George. 20°09'S, 57°23'E.

**Date and History of Establishment** 2 February 1983 by Government Notice No. 18.

**Area** 500ha

**Land Tenure** Government

**Altitude** Sea level

**Physical Features** The reserve encloses the harbour of Port Louis and includes an estuary at the entrance to the Grand River North West and River St. Louis. It comprises a lagoon with a muddy to sandy bottom and coral patches of mostly dead communities. A deep channel leads to the main harbour of the island from a wide pass in the reef of mostly dead communities.

**Climate** No information

**Vegetation** Seagrass communities are extensive on the southern part with some eutrophication, and seaweeds at the entry of sewage outfalls include *Ulva lactuca*, *Enchemia* sp., and *Enteromorpha* sp..

**Fauna** Lagoon fishes, particularly siganids and parrot fishes are present. All commercially exploited species are well represented. The reserve provides large nursery areas for mullet *Mugil cephalus* and *M. sebeli*, rabbitfish (Siganidae), scavenger fish (Lethrinidae), and goatfish (Mullidae). The crab *Scylla serrata* and many species of prawns also occur. Knowledge of smaller taxa generally lacking. However, in some areas many of the corals are dead.

**Cultural Heritage** No information

**Local Human Population** No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities Fish stock assessment (not restricted to the reserve)

The Fisheries Research Centre is situated 10km to the south.

Conservation Value No information

Conservation Management The Fisheries Act 1980 prohibits large net or gill net fishing.

None

Management Constraints Effluents (including industrial waste) from two sewage outfalls flow into the reserve. There is solid waste dumping around Northern Point and the presence of the harbour causes some disturbance. There is also illegal fishing.

Staff Three fisheries assistants are based at an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

Budget There is no specific budget; recurrent expenditure and salaries are met from a budget allocated to both Fisheries Research and Protection Service i.e. Rs.8.3 million.

Local Addresses

Protection Service; Fisheries Division

References

Fisheries Act 1980. Fisheries regulations in Government Notice No. 18 of 1983

Date July 1983

Rivière du Rampart-Poudre d'Or Fishing Reserve

IUCN Management Category VIII (Multiple Use Management Area)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location On the north-east coast of Mauritius. Boundaries are marked by high water mark and a line from Pointe Grand Courant to the nearest shore of Ile d'Ambre and along the shore of that island to Pointe Dejeuner, then to the southern side of Passe St Geran, and along the reef to Point Roches Noires. 20°05'S, 57°42'E.

Date and History of Establishment 2 February 1983 by Government Notice No. 18

Area 3,500ha

Land Tenure Government

Altitude Sea level

Physical Features The reserve comprises a lagoon with sandy and rocky bottoms, and coral reefs. Rocky shores predominate on the inter-tidal zone, which also has small stretches of sandy beaches. The reserve also includes two barachois (fish ponds).

Climate No information



**Vegetation** Mangroves are found interspersed in rocky shores; in some areas they form dense stands. There are numerous rocky islets covered in mangroves.

**Fauna** The area is particularly rich in mullets (Mugilidae), rabbitfish (Siganidae), goatfish (Mullidae) and scavenger fish (Lethrinidae). Rich oyster beds are present, and all the commercially exploited species are fairly well represented. There is also part of the reef fringing communities. Knowledge of smaller taxa is generally lacking.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** Fish stock assessment (not restricted to reserve)

None.

**Conservation Value** No information

**Conservation Management** The Fisheries Act 1980 prohibits large net or gill net fishing.

None

**Management Constraints** Illegal fishing and fish and oyster farms

**Staff** Three fisheries assistants are based at an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

**Budget** No specific budget is allocated; recurrent expenditures and salaries are met from the budget allocated to both Fisheries Research and Protection Service, i.e. Rs.8.3 million.

**Local Addresses**

Protection Service; Fisheries Division

**References**

Fisheries Act 1980.

Fisheries regulations in Government Notice No. 18 of 1983.

**Date** 1985

Trou d'Eau Douce Fishing Reserve

**IUCN Management Category** VIII (Multiple Use Management Area)

**Biogeographical Province** 3.25.13 (Mascarene Islands)

**Geographical Location** Off the east coast of Mauritius. The boundaries are marked by high water mark and a line drawn from Le Morne to the extreme western point of Ile aux Rats, along the inner shore of Isles aux Cerfs to Pointe Petit Vacoas, and to the extreme point of Ilot Lievre and Point Saint Lain (Pointe Cassis). 20°16'S, 57°47'E.

Date and History of Establishment 2 February 1983 by Government Notice No. 18

Area 700ha

Land Tenure Government

Altitude Sea level

Physical Features The shallow water, including the estuaries at the Grand River South East, is brackish.

Climate No information

Vegetation There are extensive mangrove areas in the inter-tidal zones and around the many small islets of the Iles aux Cerfs region. The area is rich in seagrass communities.

Fauna The fauna comprises varied coral communities. The brackish water provides habitats for oyster communities, which settle on the mangrove roots. The area provides a nursery ground for many species and is particularly rich in mullet species.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities No information

None

Conservation Value No information

Conservation Management The Fisheries Act 1980 prohibits large net or gill net fishing.

None

Management Constraints There are large amounts of silt deposited in the reserve during heavy rain. Pollutants from a sugar mill are carried via the Deep River Beau Champ into a part of the reserve. There is also illegal fishing.

Staff Three fisheries assistants are posted in an adjacent fisheries post. Enforcement is carried out as part of the general duties of the Fisheries Protection officers.

Budget There is no specific budget; recurrent expenditure and salaries are met from a budget allocated to both Fisheries Research and Protection Service, i.e. Rs.8.3 million.

Local Addresses

Protection Service; Fisheries Division

References

Fisheries Act 1980. Fisheries Regulations in Government Notice No. 18 of 1983.

Date July 1983

Coin de Mire (Gunner's Quoin) Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location About 4km north of Cap Malheureux, between the Cape and Flat Island. 19°56'S, 57°37'E.

Date and History of Establishment 14 January 1970

Area 76ha

Land Tenure Government

Altitude Sea level to 162m

**Physical Features** The island comprises a mass of volcanic rocks, forming a wedge-shaped cliff with stratification dipping on one side towards Mauritius and the other towards Ile Plate (Flat Island). The top of the cliff is flat with a layer of volcanic soil. The island is composed of tuff, though this is overlain by basalt flows in the eastern part. The coast is rugged, and the surrounding rough sea prevents reef formation. Rainfall averages 900mm per year, and falls mainly between November and April during the warm, wet summer. Mean temperature during February is 27.8°C, and during July 21.9°C. The islands are subject to cyclones in winter.

**Climate** No information

**Vegetation** Seventy species of plant are found on the island, with eight species being endemic to the Mascarenes. These form four basic vegetation types, *Zoysia* grassland, *Padanus/Latania* scrub, *Heteropogon* thorn scrub, and coastal communities. There are extensive colonies of the endemic liliaceous aloe-like plant *Lomatophyllum tormentorii* (a species endemic to Gunners Quoin and Round Island) in the *Zoysia* grassland, and a few individuals of *Dracaena concinna*, and the endemic shrubs *Scutia myrtina* and *Eugenia lucida* is the thorn scrub. The fan pine *Latania loddigesii* is now rather less common than the screw pine *Pandanus vandermeerschii*. The islet is much invaded by exotic weed species (there are some 36 introductions), and thicket of introduced *Santalum album* has become established over a large area on the top of the cliff.

**Fauna** The island is a breeding site for three species of seabird, the white-tailed tropic bird *Phaethon lepturus*, the red-tailed tropic bird *Phaethon rubricauda rubricauda*, and the wedge-tailed shearwater *Puffinus pacificus chlororhynchus*. Four species of reptile are also found, two skinks *Scelotes bojeri* and *Ablepharus boutonii*, and two geckos *Phelsuma ornata* and *Nactus coindemirensis* sp. nov. (the last endemic to Gunner's Quoin), although three further species were known to be present before the introduction of exotic mammals.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** A survey of the islet was recently carried out (Bullock et al., 1983), as part of an expedition to this islet and Round Island. One aim was to assess the suitability of Gunner's Quoin for the introduction of Round Island reptiles, which have been captive bred by the Jersey Wildlife Preservation Trust. The island was considered unsuitable because of the presence of black rats *Rattus rattus*.

None

**Conservation Value** No information

Conservation Management Total. Protected under the Forest and Reserves Act 1983.

None

According to North and Bullock (1986), effective control of invasive plants and rats is necessary before any reintroduction of native plants and animals could be reasonably contemplated. However substantial resources, currently beyond the Mauritian authorities, would be required.

**Management Constraints** The effects of various exotic species, both plant and animal, have had very severe effects on the native vegetation. For example, rats are reported to be contributing to the low regeneration rate of fan palm and screw pine. Also contributing to this is the invasion by exotic ruderal species such as *Santalum album*. The black-necked hare *Lepus nigricollis* is also found as an exotic, though numbers are reported to be low. (This was introduced following an abortive attempt to introduce rabbit.)

**Staff** Periodic visits are made by Forestry and Fisheries Department staff.

**Budget** None

**Local Addresses**

Forest Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

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North, S.G. and Bullock, D.J. (1986). Changes in the vegetation and populations of introduced mammals of Round Island and Gunner's Quoin, Mauritius. Biological Conservation 37: 99-117.

**Date** 1984

Ile aux Aigrettes Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

**Geographical Location** About 1km east of Pte. d'Esny in Mahebourg Bay. 20°25'S, 57°43'E.

**Date and History of Establishment** 30 November 1965

**Area** 25ha



Land Tenure Government

Altitude Sea level to 4-5m

Physical Features The island is composed of calcarenite (coralline dune rock) with a jagged eroded coastline subjected to the eastern trade winds. Soil consists of coral sand enriched by plant debris.

Climate No information

Vegetation This is one of the best examples of the original coastal plant communities of calcarenitic substrates. The island harbours some 40 native species of plant, of which ten are endemic to Mauritius and a further six to the Mascarenes. There is a typical strand salt-spray zone scrub with *Suriana*, *Pemphis* and *Scaevola* well represented. Inland flora comprises endemic coastal trees and shrubs which have now mostly disappeared from the island's coastal belt due to human settlements in the past and, more recently, illegal wood-cutting. Native indigenous species are represented by ebony *Diospyros egrettarum*, *Gastonia cutispongia* (endemic), and *Dracaena concinna*. The orchid *Oeniella aphrodite* is noteworthy and requires additional protection. More rare on the island are the endemics, *Sideroxylon boutonianum* (only 2 or 3 left on the island), and the screwpine *Pandanus vandermeerschii*.

Fauna The name 'Ile aux Aigrettes' was probably derived from the reef heron, 'egrettes'. Reptiles include *Phelsuma ornata*.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities Vegetation mapping is planned for 1985.

None on the island

Conservation Value No information

Conservation Management Total. Protected under the Forest and Reserves Act 1983.

None

None

Management Constraints Rats are now plentiful on the islet. The easy accessibility of this islet, together with the fact that there is no watchman posted there, has led to the virtual decimation of most indigenous trees. There is no natural freshwater source. Several introduced exotic plant species, for example *Flacourtia indica*, *Lantana camara*, and *Leucaena glauca*, are seriously threatening the survival of some of the rare endemic plants.

Staff Occasional visits by Forest Service and Fisheries Department Officer.

Budget No information

Local Addresses

Forest Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

References

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Date 1985

Ile aux Cocos Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location 3.7km off the west coast of Rodrigues within the lagoon. 19°43'S, 63°17'E.

Date and History of Establishment 30 May 1981

Area 15ha

Land Tenure Government

Altitude Sea level to 4m

**Physical Features** This island comprises a sand cay, with coarse granular sand and other debris of marine organisms accumulated by sea currents and tides lying in shallow lagoon waters. The more protected shores merge into extensive sand flats which are largely exposed at low tide.

**Climate** No information

**Vegetation** The island is largely under mixed plantation of *Casuarina equisetifolia* and coconut *Cocos nucifera* trees. There are large expanses of grassy sward with *Stachytarpheta jamaicensis*, *Desmanthus virgatus*, and *Achyranthes aspera*. Dense *Pisonia grandis* thicket occurs along part of the western littoral and inland as isolated clumps which are sharply delimited from the cultivated tree plantation. A fairly extensive inland salt marsh supports a lush vegetation of *Sesuvium ayresii* (Mascarene endemic) with patches of *Bacopa monnieri*.

**Fauna** Small colonies of between 400 and 700 noddy *Anous stolidus pileatus* and lesser noddy *Anous tenuirostris tenuirostris* are present, and the favourite nesting sites are the *Casuarina* trees and *Pisonia* thickets. The white tern *Gygis alba* is now almost extinct here.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** Government Notice No. 157 of 1982 requires all visitors to obtain prior authorization from the Resident Commissioner before visiting the islet and all visitors must be taken there by Government boat.

**Scientific Research and Facilities** The vegetation of the island has been surveyed by Gueho (1980).

None

**Conservation Value** No information

**Conservation Management** Total. Protected under the Forest and Reserves Act 1983

None

**Management Constraints** Bird eggs are extremely vulnerable. Indiscriminate collecting has caused considerable disturbance and damage to bird life.

**Staff** The island is visited as often as possible by Fisheries and Forestry Service officers from the main island of Rodrigues. One watchman is posted on the islet, but is ineffective against egg collecting.

**Budget** Virtually nil

**Local Addresses**

Forest Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

**References**

Gueho, J. (1977). Guide des principales plantes indigenes de l'Ile Rodrigues. Rev. Agric. Sucr. Ile Maurice 56(1): 6-23.

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Staub, F. (1973). Birds of Rodrigues Islands. Proc. R. Soc. Arts & Sci. Mauritius. 4(1): 17-59.

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Vinson, J. (1956). Quelques remarques sur l'Ile Rodrigues et sur sa faune terrestre. Proc. R. Soc. Arts & Sci. Mauritius 2: 263-277.

**Date** 1985

Ile aux Serpents Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

**Geographical Location** 26.8km to the north-east of Cap Malheureux. 19°49'S, 57°48'E.

**Date and History of Establishment** 1983

**Area** 31ha

**Land Tenure** No information

**Altitude** From sea level to 177m

**Physical Features** Dome-shaped volcanic islet, with many precipitous rock overhangs

**Climate** No information

**Vegetation** The islet is guano covered and bare of vegetation except for patches of *Portulaca* and *Brachiaria*, which grow in rock crevices.

**Fauna** About two million birds use the islet. There are about a million sooty tern *Sterna fuscata nubilosa*, 200,000 noddy *Anous stolidus pileatus*, 500,000 lesser noddy *Anous tenuirostris tenuirostris*, and 20-40 masked booby *Sula dactylatra melanops* (Feare 1984). These tern and noddy colonies are some of the biggest in the world for these species. The rock overhangs are particularly favoured by birds as egg laying sites. The only reptiles on the islet are skink *Gongylomorphus bojerii* (fairly large numbers) and the Serpent Island gecko *Nactus serpensinsula* (E).

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** Landing by boat is almost impossible

**Scientific Research and Facilities** The islet has rarely been visited by scientists, as access is so difficult.

None

**Conservation Value** No information

**Conservation Management** Total. Protected under the Forests and Reserves Act 1983.

None

**Management Constraints** Considerable disturbance is caused by people sounding boat sirens on purpose so that they can watch huge flocks of birds taking off.

**Staff** None

**Budget** Nil

**Local Addresses**

Forest Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

**References**

Bullock, D. and North, S. (1975). Report of the Edinburgh University Expedition to Round Island.

Feare, C.J. (1984). Seabird status and conservation in the Tropical Indian Ocean. In Status and Conservation of the World's Seabirds. ICBP, Cambridge. Pp 457-472.

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Vinson, J. (1953). Some present data on fauna of Round and Serpent Island. Soc. Art & Sci. Mauritius (13): 253-257.

**Date** 1985

**Ile Plate Nature Reserve**

**IUCN Management Category** IV (Managed Nature Reserve)

**Biogeographical Province** 3.25.13 (Mascarene Islands)

**Geographical Location** About 11km north-north-east of Cap Malheureux, off the northern most point of Mauritius. 19°53'S, 57°39'E.

**Date and History of Establishment** 15 July 1972

**Area** 253ha

**Land Tenure** Government

**Altitude** Sea level to 116m

**Physical Features** The islet is roughly circular, about 2km in diameter, comprising a rocky hill, 116m high, and a volcanic plateau which stretches northward over more than half of the islet. The eastern and western sections of the plateau are composed of sand ridges, some of which rise 9m above mean sea level. Towards the coast, the ridges degrade into a mass of loose coral and finally into loose volcanic blocks. The slopes below the hill are covered with a thin layer of volcanic soil and volcanic sand. There is a pocket of basaltic foreshore on the southern side of the islet, near Palisade Bay. A continuous peripheral fringing reef joins the northern points of Ile Plate and Ile Gabriel to form a lagoon. Surf piles in over this reef, building up the level of lagoon water which pours back out to sea through a channel to the south. The entire north-western arm is a series of calm pools with patches of coral. A reef to the south of the islet has elements of spur and groove structure, but this is only poorly developed.

**Climate** No information

**Vegetation** There is a coastal strand flora along part of the sandy eastern coast. The inland native flora has almost completely been destroyed by man, periodic fires and establishment of exotic tree plantation. The spinose shrub *Lantana camara* is widespread. A few *Pandanus vandermeerschii* trees persist on the basaltic foreshore near Palisade Bay. A few *Latania* and *Pandanus* trees still occur inland fixing themselves in rock crevices. Open ground is sparsely covered by grass and shrub savanna with *Cassytha*, *Tylophora*, and *Graminae*. The coral colonies have a dense cover of green, red, and brown seaweeds.

**Fauna** The skink *Gongylomorphus bojerii bojerii* has been observed on coral and open ground. The lizard *Phelsuma ornata* is often seen on rocks near the sea. Only a few migratory bird species nest on the islet. The lagoon floor is almost entirely covered by coral. *Acropora* spp., exhibiting digitate, tabular and staghorn growth forms, are the dominant corals over most of the lagoon. The reef flat exhibits three stages of formation - a young zone of dead staghorn coral on the lagoon side, a zone of loose coral rubble with small coral colonies outside the staghorn, and an outer algal zone of coral rubble consolidated by calcareous algae and brown algae. The patches of coral vary in structure, mainly being large tabular colonies of *Acropora* and covered by stands of foliaceous *Montipora*. Fish include tiger cowrie *Cypraea tigris* and *C. lynx*, blue spotted boxfish *Ostracion cubicus*, and *Acanthurus nigronis* in large schools. There are numerous nudibranchs, aplysiids and blue-green sea cucumbers *Stichopus chloronotus*. The fore reef slope is particularly interesting for populations of large fish (Carengids, Lutjanids, Nasinids, Scarids). Altogether 150 species of fish have been recorded from the Ile Plate reefs (Procter and Salm, 1975). The abundant and beautiful blue coral *Heliopora coerulea* is a feature that is unique (among Mauritian reefs) to this area.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** There have been studies on flora and fauna

There are no facilities on the islet, except for a lighthouse.

**Conservation Value** No information



Conservation Management Total. Protected under the Forest and Reserves Act 1983.

None

Management Constraints Both feral cats and rats exist on the islet. Periodic fires often cause enormous damage to vegetation.

Staff Visited as often as possible by Forestry Service, Fisheries, and Port Officers

Budget None

Local Addresses

Forest Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

References

Ayres, P.H.B. (1860). Geology of Flat and Gabriel Islands. Trans R. Soc. Arts and Sci. Mauritius, New Series Vol. I (II): 220-232.

Horne, J. (1887). Notes on flora of Flat Island. Trans R. Soc. Arts & Sci. Mauritius, New Series Vol. 19: 116-151 (Annex G).

Procter, J. and Salm, R. (1974). Conservation in Mauritius 1974. IUCN/WWF Report to the Government of Mauritius. Unpublished.

Date 1984

Round Island Nature Reserve

IUCN Management Category IV (Management Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location About 24km north-east of Cap Malheureux, the northernmost point of Mauritius. 19°51'S, 57°47'E

Date and History of Establishment 1957. The area was protected by law under the Ancient Monuments Ordinance Cap 282 of 1944 and is now protected under the Forest and Reserves Act No. 41 1983.

Area 159ha

Land Tenure Public ownership

Altitude Sea level to 300m

Physical Features The reserve is part of a tilted volcanic cone which rises from a coastal shelf at about 50m depth. Most of the island is composed of volcanic tuff, weathered into an extremely rugged landscape with numerous cliffs, and curious horizontally ridged pillars and deep gullies up to 15m deep. Blocks of basalt and deposits of coral detritus occur at various levels, as well as veins of quartz.

Climate No information

Vegetation The natural vegetation of much of the island is palm savannah, and early descriptions of the vegetation relate that both screw pine *Pandanus vandermeerschii* and fan palm *Latania loddigesii* were

common in ravines, with two other palms, the bottle palm *Hyophorbe lagenicaulis* and hurricane palm *Dictyosperma album*, also in abundance. This vegetation was similar to that of north-west Mauritius, in the coastal regions. However, the vegetation has been greatly reduced by rabbits and goats, and few natural specimens survive of the endemic bottle palm and hurricane palm though the species are now found naturally only on Round Island, and only in cultivation on the mainland. Round Island is therefore the only remaining palm savannah site in the region, despite the fact that the vegetation type once probably covered the entire northern plain of Mauritius (Vaughan & Weihe, 1937), an area now under sugarcane. Unfortunately, the native hardwood flora has also been much reduced, and only two species of woody tree, *Fernelia buxiflora* and *Gagnebina pterocarpa*, each known from one specimen, still remain on the island. Important species still found on the island include *Mazambrou Lomatophyllum tormentorii*, *Bois de Chandelle grandes feuilles* *Dracaena concinna*, *Phyllanthus revaughanii*, *P. mauritanus*, *Chloris filiformis*, *Ipéca du pays* *Tylophora coriacea*, *Selaginella barklyi*, *Vetiveria arguta*, *Aerva congesta*, *Asparagus umbellulatus* and *Brachiaria serpens*. Species which were probably once found on the island still exist on the mainland and could be reintroduced (see Strahm, 1986; Merton et al., in prep.). Round Island contains 12 species endemic to Mauritius (one now endemic to Mauritius because it is extinct on Rodrigues). A further three species are endemic to the Mascarene Islands, and many more are native to the island although they have a distribution wider than the Mascarenes. This is not counting over one hundred endemic species which probably once grew on the island and which may be reintroduced from the mainland now that rabbits and goats have been eradicated.

**Fauna** The island provides a breeding place for fairly large populations of four species of seabirds. About 120 pairs of Round Island or Trinidad petrel *Pterodroma arminjoniana* breed there annually. Only one other breeding location is known, the Trinidad/Martin Vaz islands off the south-east coast of Brazil. The population of red-tailed tropic bird *Phaethon rubricauda* and white-tailed tropic bird *P. lepturus* was estimated in August 1982 to be up to 300, with 100 breeding pairs. The total population of wedge-tailed shearwater *Puffinus pacificus* was between 3,500 and 4,000 pairs (Feare 1984). Individuals of Audubon's shearwater *Puffinus iherminieri*, little shearwater *Puffinus assimilis* and Bulwer's petrel *Bulweria bulwerii* have also visited the island, as well as migrant turnstones *Arenaria interpres*, and several species of tern feeding close to the shore.

Reptile species constitute the most notable element of the fauna with five threatened species - the Serpent Island gecko *Cyrtodactylus (Nastus) serpensinsula* (T), the Round Island day-gecko *Phelsuma guentheri* (T) (population declining), the Round Island or Telfair's skink *Leiopisma telfairii* (T), the Round Island boa *Bolyeria multicarinata* (T) and the keel-scaled boa *Casarea dussumieri* (T). All except the last-mentioned are now only found on Round Island. In addition, the ornate day-gecko *Phelsuma ornata* and two more skinks, *Scelotes bojerii* and *Alepharus boutonii*, are present in larger numbers. Two snakes are the most extraordinary of the reptiles inhabiting the island, being the sole surviving members of the sub-family *Bolyerinae*, a group of primitive boas of particular scientific interest (the nearest relatives of which occur on Madagascar).

Invertebrates are not well-known, but a few endemic taxa have been recorded from Round Island, including a scale insect *Asterolecanium dictyospermae*, *Paraphrixia purpurea* and an endemic subspecies of land snail *Tropidophora fimbriata* ssp. *haemastoma*. Vinson (1964) has described a number of endemic insects.

**Cultural Heritage** No information

**Local Human Population** None

**Visitors and Visitor Facilities** Due to the difficulty of effecting a landing except for the period September to mid-December, visitors to the island have been very limited in number; no water or shelter is available on the island, and the heat may be considerable. Landing or evacuation by helicopter has been effected occasionally but is expensive and disturbs the birds.

**Scientific Research and Facilities** Studies on most of the above-mentioned species have been undertaken by various Round Island expeditions in the past few years and permanent vegetation quadrats have been established to monitor the change in vegetation. Growth rates of palms are also being studied and monitoring



the lizard populations is being continued. Attempts at restoration ecology by planting native species that were or may once have been on the island has already been started. Excellent herbarium facilities are available on Mauritius.

Conservation Value No information

**Conservation Management** The island has suffered from the effects of two introduced species, but fortunately the last goat was shot in 1979 and rabbits eradicated by 1986. The island is now free of all introduced animals. However, the unauthorised landing and slaughter of birds is unlikely to be controlled until the island is wardened. It has been suggested that location of a warden on Round Island itself could cause more damage than good (Merton et al., in prep.), and a better solution would be to have a warden stationed on nearby Flat Island, with a fast boat to enable him to get to Round Island. Although the vegetation of the island is degraded, North and Bullock (1986) suggest that some areas retain the potential for rapid recovery when herbivore populations are reduced and regeneration of the bottle palm at least is already apparent. Species which probably were once found on the island still exist on the mainland and could be reintroduced (see Strahm, 1986, and Merton et al., in prep. for a list) as Round Island provides the only secure place for these species which is free of exotic animals and invasive weedy plant species). Merton et al. (in prep.) are preparing a management plan for this. In the long term Round Island may be the only place where lowland Mauritian forest will be able to survive.

**Management Constraints** Goats and rabbits were introduced to the island at the beginning of the 19th century, and possibly earlier, although fortunately the island is now free of introduced animals. Goats and rabbits have had a devastating effect on the native vegetation, probably causing the extinction of hundreds of species (although these have for the most part survived on the mainland). Round island is also badly eroded because of the over-grazing and browsing, and there is continued soil erosion (80-90% of the island is now bare rock) and a lack of regeneration (the number of mature bottle palm trees has declined to eight and the number of hurricane palms to two).

Damage to the vegetation has had repercussions on the animal species. Both the Round Island day-gecko and the ornate day-gecko have declined in numbers and the former may only be represented by 200 individuals. Although the keel-scaled boa population has remained stable since 1975, the Round Island boa could not be found in 1982 and may be extinct. Shearwaters have been competing with rabbits for burrowing space in the remaining areas of soil, leaving them bare and unstable. Many shearwaters, unable to find burrowing space, lay their eggs on bare rock where they bake in the sun when the heat drives the adults out to sea. Procter and Salm (1975) found 100 eggs abandoned in this way.

Poaching of seabirds and their eggs is a problem, although disturbance is seasonal as landing on the island by boat is difficult most of the year. The population of wedge-tailed shearwaters is so large that it can probably withstand the pressure, although poaching of tropic birds and Trinidad petrels (which fortunately has not been observed) could lead to more serious problems. Of greater concern than the poaching itself is the possible accidental introduction of some exotic animal such as a house gecko, snake, mouse, rat or shrew by the trespassers.

**Staff** None. The island is occasionally visited by forestry officers and various expeditions.

**Budget** Virtually nil

**Local Addresses**

Conservation Unit, Ministry of Agriculture, New Government Building, Port Louis, Mauritius

**References**

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Vinson, J. (1964). Sur la disparition progressive de la flore et de la faune de l'Ile Ronde. *Proceedings of the Royal Society of Arts & Sciences, Mauritius* 2(3): 247-261.

Williams, D.J. and Mamet, J.R. (1986). A new species of *Asterolecanium* Targioni Tozzetti (Homoptera: Asterolecaniidae) on a palm in Round Island, Mauritius: a conservation puzzle. *Systematic Entomology* 11: 129-132.

Date 1985, revised August 1988

0157P

Ilot Gabriel Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location 12km to the north-north-east of Cap Malheureux, close to Ile Plate. 19°53'3S, 57°40'E.

Date and History of Establishment 4 December 1972

Area 42ha

Land Tenure Government

Altitude Sea level to 28m

Physical Features The centre of the volcanic islet is broken into ridges and boulders and covered with a thin layer of volcanic soil. This is bounded by low sand banks, except to the south-east where the beach is composed of long spurs of volcanic rock projecting into the sea. Toward the centre, the shore sand intermixes with coral blocks and volcanic detritus in a narrow belt.

Climate No information

Vegetation The islet is covered with shrubby vegetation mainly comprising *Psiadia trinervia*, the 'Baume de l'Ile Plate' of renowned medicinal value. There is also a coastal scrub of *Suriana*, *Scaevola*, and *Tournefortia*.

Fauna The presence of two species of reptile, *Gongylomorphus bojerii* and *Phelsuma ornata* is noteworthy. The islet does not appear to be an important nesting site for seabirds now, though Newton (1956) reported that white-tailed *Phaethon lepturus* and red-tailed tropic birds *Phaethon rubricauda* bred here at one time.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities Vegetation surveys are carried out occasionally.

None on the islet

Conservation Value No information

Conservation Management Total. Protected under the Forest and Reserves Act 1983.

None

Management Constraints Rabbits and rats have become numerous on the islet. Erosion is still at a moderate level but increasing.

Staff Visited occasionally by Forest and Fisheries Service Officers

Budget None

Local Addresses

Forest Department, Ministry of Agriculture, Fisheries and Natural resources, Curepipe.

References

Ayres, P.H.B. (1860). Geology of Flat and Gabriel Islands. Trans. R. Soc. Arts & Sci. Mauritius, New Series Vol. I, Part II: 220-232.

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Date 1985

Ilot Marianne Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 3.25.13 (Mascarene Islands)

Geographical Location 7.4km to the east of Vieux Grand Port to the south-east of Mauritius. 20°22'S, 57°47'E.

Date and History of Establishment 4 December 1972

Area 2ha

Land Tenure Government

Altitude Sea-level to 1-2m

Physical Features The islet is typically calcarenitic with an eroded coastline, which may be partially submerged during cyclonic weather.

Climate No information

Vegetation There is a low sparse strand flora on the eroded calcarenite substrate with native halophytic herbs, typical of the salt spray zone.

Fauna There is no nesting bird population, though migratory birds such as shearwater *Puffinus lherminieri* and foudet *P. pacificus* occur. The skink *Gongylomorphus bojerii* is present. The water around the islet contains numerous species of molluscs.

Cultural Heritage No information



Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities There are occasional surveys of flora.

None on the islet

Conservation Value No information

Conservation Management Total. Protected under the Forest and Reserves Act 1983.

None

Management Constraints It has long been a favourite site for shell collection. The molluscs have been subjected to intensive exploitation. Its relatively long distance from the mainland also precludes any efficient control of the activities of egg collectors around the islet.

Staff Periodic visits by Forestry and Fishery Department Staff

Budget Virtually none

Local Addresses

Forestry Department, Ministry of Agriculture, Fisheries and Natural Resources, Curepipe.

References

Johnston, H.H. (1894). Report on Flora of Ile aux Aigrettes. Trans. Bot. Soc. Edinburgh pp 317-331.

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Date 1984

## *Seychelles*

Baie Ternay Marine National Park

IUCN Management Category II (National Park)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location A sheltered bay on the extreme western tip of Mahé Island. 4°38'S, 55°22'E.

Date and History of Establishment Designated as a marine national park in 1979 by Statutory Instrument No. 54, Baie Ternay Marine National Park (Designation) Order.

Area 80ha, contiguous to the wholly terrestrial Morne Seychellois National Park (3,045ha) and on the other side of Ternay Bluff to Port Launay Marine National Park (158ha).

Land Tenure Government

Altitude Sea level down to 37m depth

**Physical Features** A shallow lagoon approximately 800m wide lies between the continuous fringing reef at the head of the bay from the shore. It is grooved and cut by numerous surge channels and this section of reef offers a valuable refuge to a host of large and small reef fishes. The climate is determined by two alternating monsoons, or seasonal winds, the strong dry winds of the south-east monsoon blow from May to October and the erratic north-west monsoon, alternating between periods of calm, terrific squalls and torrential rains, blows from December to March; November and April are the transitory months. The mean annual temperature ranges from 24° to 30°C and relative humidity is always high, averaging 75-80%.

**Climate** No information

**Vegetation** The shallow reef-flat is covered by a variety of seaweeds including stalked *Turbinaria*.

**Fauna** Hawksbill turtle *Eretmochelys imbricata* (E) breed here and there is an abundant reef fish fauna. Pillai et al. (1973) have described some of the corals found in this area; Salm (1977) also gives a brief description of the reefs. Reef development is not extensive and there are few living corals. The deeper reefs fringing the rocky headlands are in very good condition, comprising soft corals (*Alcyonaria*) anchored on dead *Porites* colonies (Salm, 1977 and UNEP/IUCN, in prep.). Salm (1977) describes these soft coral communities found in the bay as the best on Mahé.

**Cultural Heritage** No information

**Local Human Population** No information

**Visitors and Visitor Facilities** Popular for swimming and snorkelling, being easily accessible from Beauvallon. Glass bottomed boats are available for hire.

**Scientific Research and Facilities** General survey by a group from Galway University.

None

**Conservation Value** No information

**Conservation Management** It is illegal to disturb marine turtles in any way (Mortimer, 1985), and the area is a declared fishing reserve.

This park was primarily established both for maintenance of an area of natural beauty for the benefit of the general public, including tourists, and to protect the reef to maintain its value for tourism. A draft management plan covering both Baie Ternay and Port Launay has been drawn up (Wilson, 1980) and lays increased emphasis on other aspects of nature conservation, but this plan has yet to be fully implemented. The park boundaries currently exclude the beaches to allow recreational activities to continue. It has been proposed (Salm, 1977) that they be incorporated into the park and provisions for recreation developed.

No information

**Management Constraints** To date, lack of trained personnel, equipment and houses has meant that there is no enforcement of park regulations. There is some poaching of corals, shells and hawksbill turtles, though numbers taken within the protected area are lower than outside the boundaries (Mortimer, 1985). Since early 1983, the second and largest National Youth Service camp has been sited next to the Bay which has effectively closed the bay to the general public. There is some fishing with handlines and traps and some seine netting of mackerel by staff and students. The treated sewage (stored in three oxidation ponds) from the settlement is discharged into the enclosed bay; the precise impact of this has yet to be assessed. Some of the existing mangrove swamp has been lost to reclamation.

**Staff** None



Budget None

#### Local Addresses

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

#### References

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UNEP/IUCN (in prep.). Directory of Coral Reefs of International Importance. Volume 2. Indian Ocean.

Date June 1983

#### Curieuse Marine National Park

IUCN Management Category II (National Park)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location Comprises the irregular-shaped Curieuse Island and its surrounding waters, including the outlying St Pierre Islet and the channel between the island and Anse Boudin, up to high water mark along the north-east coast of Praslin. 4°16'-4°18'S, 55°43'E.

Date and History of Establishment Declared a marine national park in 1979 by Statutory Instrument No. 55, Curieuse Marine National Park (Designation) Order. Protective regulations under this act have been drafted and will be introduced when designation is complete.

Area 1,470ha total (of which 283ha is marine)

Land Tenure Government

Altitude 30m below sea level to 172m

Physical Features Comprises the rugged granitic island of Curieuse (2.83 ha), which rises to Curieuse peak (172m); St Pierre Islet at the south-west extreme of the park; the northern coastline of Praslin from Chevalier Point in the west to Pointe Zanguilles in the east; and the marine channel between the islands. The marine part of the park ranges from shallow water reefs, exposed at low tide, to a 30m drop-off. The major habitats are, deep patch reefs, algal reef flats, mangrove swamp, intertidal rocky shore and sandy beaches, and wooded slopes. The low-lying area on the eastern side of Curieuse has been cultivated and there are several coconut plantations there. A causeway has been constructed across the mouth of Larai Bay on Curieuse, creating a small enclosed lagoon known as Turtle Pond.

## Climate No information

**Vegetation** The island is significant as one of only two islands where the coco-de-mer *Lodoicea maldivica* grows naturally (the other locality is Vallée de Mai on Praslin Island where it is much more extensive). It is also the principal locality for the endemic vine *Toxocarpus schimperianus*. Some of the finest specimens of the *Northea seychellarum* are to be found behind Baie La Raie. In the lagoon formed behind the causeway, a patch of mangrove swamp is developing, characterised by *Rhizophora mucronata*, *Lumnitzera* sp., *Sonneratia* sp. and *Xylocarpus* sp.. A new species of banana *Gastonia* sp. was discovered on the island in 1982.

**Fauna** Land birds common to the Seychelles which are known from the park include: Seychelles sunbird *Nectarinia dussumieri* and thick-billed bulbul *Hypsipetes crassirostris*, together with certain seabirds, such as fairy tern *Gygis alba*. A population of some 300 giant tortoises *Geochelone gigantea* (R) introduced from Aldabra breed successfully on the island. About 20 to 40 female hawksbill turtles *Eretmochelys imbricata* (E) regularly use the beaches on Curieuse during the breeding season. Brahminy blind-snake *Ramphotyphlops braminus* and at least one species of caecilian can be found. Lizards include *Phelsuma atriata*, *P. sunbergi*, *Gehyra mutilata*, *Mabuya sechellensis* and *Scelotes gardineri*. The marine section has good coral growth, especially around St Pierre Islet, which is well known for its tubular coral colonies, and Anse Petit Coeur on the west side of Pointe Zanguilles on Praslin. Most noticeable are colonies of blue-tipped *Acropora*, mauve or brown staghorn and pink *Pocillopora*. The fish life is remarkably rich and varied. Many large angelfish and groupers lurk with the soldierfish *Holocentrus* sp. around the caves in the pitted bases of larger boulder corals. Curieuse was once well-known for its abundant molluscs, octopi and lobsters, but these numbers have declined and the crab population in the mangrove areas are only now recovering; the land crab *Cardiosoma* is still abundant on the coastal strip.

## Cultural Heritage No information

**Local Human Population** Curieuse is still inhabited and cultivated, though the number of people living here has fallen.

**Visitors and Visitor Facilities** Facilities are planned, particularly in the Anse St. Jose/Caiman plateau area. Two areas are also designated swimming zones.

**Scientific Research and Facilities** The introduced giant tortoise *Geochelone gigantea* population is being closely monitored as well as its impact on the vegetation. A tagging programme for female hawksbill turtles during the breeding season was initiated in 1981 (Mortimer, 1985). Some preliminary terrestrial plant surveys have also been carried out.

## No information

## Conservation Value No information

**Conservation Management** The collection of seashells is prohibited under the protection of shells Ordinance (Cap.138) of 1965. Curieuse is also listed as a protected breeding site under the Turtle Protection Act, under which it is illegal to hunt turtles in the sea area 1,000m from the high water mark.

Divided into three main zones, Conservation, by far the most extensive including the badly burnt hillsides which are being restored; Agricultural, including commercial forest (the fertile land by the ex-leper colony has been earmarked for a fruit farm and piggery); and Tourism, there is a proposal to turn the old doctor's house into an information centre and to have some chalet-style hotel development.

Much management activity has been directed towards rehabilitation of burnt over and severely eroded slopes. A draft management plan was prepared in 1979.

**Management Constraints** Some areas of the island have been badly burnt and extensive anti-erosion work in the form of contour drains, and *Casuarina* plantations are visible. The eastern Peninsula was particularly badly damaged by a fire in 1967, the vegetation was decimated and there were no signs of regeneration four years later (Procter, 1971) as the native plants appear insufficiently resilient to recover. It is probable that in

their search for boat building material, the government will want to exploit the fine stands of *takamaka* *Callophyllum inophyllum*. There have been various proposals to drain the marshes and develop them for vegetable farms. If this happens, the most suitable site for starting a second colony of Seychelles paradise flycatcher will be lost. Some of the families living on the Praslin side continue to illegally hunt hawksbill turtle, but the numbers lost are lower than from areas outside the park boundaries (Mortimer, 1985).

**Staff** One senior park ranger, one park ranger grade 11, and eight labourers

**Budget** Curieuse is within the park system administered by the Conservation Division, which has a total annual budget of 600,000 SR (US\$90,000)

**Local Addresses**

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

**References**

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Salm, R.V. (1978). Conservation of marine resources in Seychelles. Report on current status and future management. IUCN/WWF report, Gland, Switzerland.

Wilson, J.R. (1979). The Curieuse National Park, A Draft Management Plan.

**Date** June 1983

**Port Launay Marine National Park**

**IUCN Management Category** II (National Park)

**Biogeographical Province** 4.16.13 (Seychelles and Amirantes Islands)

**Geographical Location** A cove on the south-west coast of Mahé Iland. 4°39'S, 55°23'E.

**Date and History of Establishment** Designated as a marine national park in 1979 by Statutory Instrument No. 56, Port Launay Marine National Park (Designation Order).

**Area** 158ha contiguous to the wholly terrestrial Morne Seychellois National Park (3,045ha) and on the other side of Ternay Bluff to Baie Ternay Marine National Park (80ha).

**Land Tenure** Government

**Altitude** From sea level to 20m depth

**Physical Features** A sheltered cove with a primarily rocky shoreline with sandy beaches. Reefs fringe the rocky shores at either end of the beach, comprising boulder type coral, with *Porites* spp. dominant; characteristic of areas of calm sea and erratic temperature and salinity. The back-reef zones are shallow and



covered by the stalked seaweed *Turbinaria*. The climate is determined by two alternating monsoons, or seasonal winds. The strong dry winds of the south-east monsoon blow from May to October and the erratic north-west monsoon, alternating between periods of calm, terrific squalls and torrential rains, blows from December to March; November and April are the transitory months. The mean annual temperature varies from 24°-30°C, while the relative humidity is always high, averaging 75-80%.

Climate No information

Vegetation Mangrove forests characterised by genera such as *Avicennia*, *Rhizophora*, *Bruguiera*, *Xylocarpus*, and *Ceriops* fringe the steep forested coastal slopes. *Turbinaria* spp. cover the back-reef zone.

Fauna Seychelles blue pigeon *Alectroenas pulcherrima* occurs in the coastal mangroves (Feare, 1973). Reef development is not extensive and living corals are few. Pillai et al. (1973) have described some of the corals found in this area. Salm (1977) also gives a brief description of the reefs. The deeper reefs fringing the rocky headlands are in very good condition, comprising soft corals (*Alcyonaria*) anchored on dead *Porites* colonies (Salm, 1977 and UNEP/IUCN, in prep.). According to the management plan, however, coral growth is poor in comparison with Baie Ternay and Ste. Anne.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities No information

Scientific Research and Facilities None

None

Conservation Value No information

Conservation Management The Port Launay Marine National Park Regulations 1981 detail how the park may and may not be used. Damage of sandbank, reef, rock or area of seashore or foreshore, or the killing, capturing or damaging of wildlife (alive or dead), or the removal of any material from the seabed is prohibited. It is illegal to disturb marine turtles in any way, and the area is also a declared fishing reserve.

This park was primarily established to maintain an area of natural beauty for the benefit of the general public, including tourists. A draft management plan covering both Baie Ternay and Port Launay has been drawn up (Wilson, 1980) and lays increased emphasis on other aspects of nature conservation, but this plan has yet to be fully implemented. Since the establishment of the first National Youth Service (NYS) camp at Port Launay, access to the area by the general public has been limited.

No information

Management Constraints Some fishing with handline and traps and even some seine netting (mostly mackerel) is carried out by the NYS staff and students. Poaching of marine turtles is still a problem (Mortimer, 1985). According to the management plan, because the bay is sheltered from the prevailing winds it is frequently used as an anchorage. The mangrove area receives no formal protection.

Staff None

Budget None

Local Addresses

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

References

Feare, C.J. (1973). The utilisation of mangroves by Seychelles birds. Short communication. Edward Grey Institute of Field Ornithology, Oxford.

Mortimer, J.A. (1985). Marine Turtles in the Republic of the Seychelles, status and management. IUCN/WWF, Gland, Switzerland.

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UNEP/IUCN (in prep.). Directory of Coral Reefs of International Importance. Volume 2. Indian Ocean.

Date 1983

Saint Anne Marine National Park

IUCN Management Category II (National Park)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location A group of six granitic islands, some five kilometres due east of Victoria, the Capital of Seychelles, on Mahé Island. 4°35'S, 55°30'E.

Date and History of Establishment Declared a marine national park in 1973 by Statutory Instrument No. 21, the National Park (Ste. Anne Marine) Designation Order.

Area 1,423ha, all the surrounding reefs and seas between the islands forming part of the park.

Land Tenure The islands of Saint Anne, Round, and Long are government owned, while the islands of Moyenne, Cerf and Le Cachée are privately owned; the marine area is part of the Seychelles Territorial Sea.

Altitude 30m below sea level to 250m

Physical Features A group of six small rugged granitic islands (Saint Anne, Round, Long, Moyenne, Cerf and Le Cachée), together with adjacent reefs and sea. The Saint Anne channel is the deepest part, down to about 30m, while Saint Anne island rises to some 250m above sea-level. Habitats to be found within the park include: exposed and fringing reefs, patch reefs, coral encrusted granite boulders, sandflats and seagrass beds, intertidal rocks and sandy beaches.

Climate No information

Vegetation Among some of the dead reefs are fairly extensive beds of Sargassum seaweeds. The seagrass *Thalassia hemprichii* is to be found between Round Island and Cerf. The islands are mainly covered by secondary vegetation, with coconut *Cocos nucifera* the most common tree. On the north-east side of Saint Anne, there is a very steep and rocky area which still has fine stands of the native palm *Phoenixophorium* and various *Pandanus* species.

Fauna Include: the Seychelles terrapin *Pelusids subniger*, the lizards *Phelsuma astriata*, *P. astriata*, *P. longinsulae*, *Ailuconyx sechellensis*, *Genyra mutilata*, *Mabuya sechellensis*, and the frog *Sooglossus*



gardinieri. Among the common birds seen in the park are: little green heron *Butoroides striatus*, greenshank *Tringa nebularia*, turnstone *Arenaria interpres*, grey plover *Pluvialis squatarola*, and whimbrel *Numenius phaeopus*. The reefs are in poor condition with much of the coral killed by siltation resulting from the dredging of the harbour, nevertheless, some of the finest marine life can still be seen off the north side of Moyenne where some 150 species of fish have been identified, including clown fishes *Amphiprion*, Moorish idols *Zanclus canescens*, blue surgeon fish *Acanthurus leucosternon*, and a wide variety of butterfly fishes (family *Chaetodontidae*). A wide variety of coral reef formations can be seen within the park, exposed and fringing reefs, patch reefs, and coral encrusted granite boulders. The park is one of the main breeding sites for hawksbill turtle *Eretmochelys imbricata* (E) within Seychelles. Octopi, sea urchins, sea cucumbers, starfish, including *Acanthaster planci*, occur in varying numbers, the sandy areas providing habitats for molluscs, starfishes, burrowing shrimps and gobies.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities The reefs attract numerous visitors and there are several glass bottom boats available for hire. For a long time there have been plans to construct an oceanarium. This seems unlikely to be realised for many years.

Scientific Research and Facilities Some studies on the growth rate of sea urchins. The Fisheries Division has been monitoring the fish catches from the licensed fishermen in the past. Since 1981, a programme has been underway to tag hawksbill turtles and to count tracks. The starfish *Acanthaster* population is being monitored. There are no special scientific research facilities available, but accommodation facilities and a wet lab have been available; these have recently been appropriated by the government for a National Youth Service school.

Conservation Value No information

Conservation Management The Ste. Anne Marine National Park Regulations 1973 details how the park may and may not be used. For example areas are demarcated for swimmers, and water-skiing within the park is prohibited. The regulations make it unlawful to kill or disturb "living things or their habitats", with a few exceptions for residents and management needs. These regulations were brought into force in 1975 by the Ste. Anne Marine National Park (Commencement) Notice. It is illegal to disturb marine turtles in any way.

There are seven areas of delicate shallow water coral reefs which were to be administered as viewing areas only, anchoring and fishing being prohibited. However, it has not been easy to demarcate these sites, even though most of the glass bottom boat operators (the main park users) know these areas well.

Shallow water reef areas, defined in a schedule to the regulations, are set aside for viewing only. Two of the areas are on the coast of Saint Anne, one to the north west, and the other southeast. The other five areas are on the north western side of the other group of islands.

Management Constraints In the past, shell collecting caused some damage to the corals. Many of the reefs have been killed by unknown causes in addition to siltation resulting from the dredging in Port Victoria and the construction work at Seychelles International Airport on Mahé. The planned construction of a fisheries harbour, combined with the east coast road scheme, will aggravate the problem. The main problem is persistent poaching by two or three families from the Les Mamelles area on Mahé. The ranger staff are youthful and have not been formally trained, hampering efficient protection. Due to the strong south-east monsoon winds, the park boundary buoys have to be renewed every year, which can be quite a major exercise.

Staff Two park rangers grade I, and two park rangers grade II. The two labourers formerly attached to the park have since been transferred to the National Youth Service village.

Budget Falls within the budget of the Conservation Section, which has a total budget of 600,000 SR (US\$90,000) per annum. On average, about 150,000 SR (US\$22,000) are collected as entrance fees to the park every year.

#### Local Addresses

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

#### References

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Robertson, I.J.B. (1972). Seychelles Marine National Parks. IUCN/WWF report No. 726, Gland, Switzerland.

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Stoddart, D.R. (Ed.) (1984). Biogeography and ecology of the Seychelles Islands. Dr. W. Junk Publishers, The Hague.

Taylor, J.D. (1968). Coral reef and associated invertebrate communities (mainly molluscan) around Mahé, Seychelles. Phil. Trans. R. Soc. (8)254: 129-206.

UNEP/IUCN (in prep.). Directory of Coral Reefs of International Importance. Volume 2. Indian Ocean.

Date June 1983

#### Morne Seychellois National Park

IUCN Management Category VIII (Multiple Use Reserve)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location Covers most of the West and central massif of Mahé Island south of Victoria. 4°37'-4°40'S, 55°22'-55°28'E.

Date and History of Establishment Designated as a national park in 1979 by Statutory Instrument No. 53, Morne Seychellois National Park (Designation) Order.

Area 3,045ha, contiguous to Baie Ternay Marine National Park (80ha) and Port Launay Marine National Park (158ha).

Land Tenure Mostly government although the entire north-west section is private land and there is a complex ownership pattern along the Forêt Noire road, particularly in the Sans Souci-L'Exil area.

Altitude Sea level to 905m

Physical Features A very rugged part of the largest granitic oceanic island, rising from sea-level at the south coast of Mahé, to 905m (Morne Seychellois Peak) within the park boundaries. Contains a variety of habitats with a relatively rich biota and high degree of endemism, including the best area of montane moss forest on Mahé and a number of key sites rich in endemic species. Numerous rivers drain the rugged upland region

including the Mare aux Cochons which flows southwards, the Boulay flowing north-west into North West Bay and the Grande Anse flowing south into Grand Anse Bay. The climate is determined by two alternating monsoons, or seasonal winds, the strong dry winds of the south-east monsoon blow from May to October and the erratic north-west monsoon, alternating between periods of calm, terrific squalls and torrential rains, blows from December to March; November and April are the transitory months. The mean annual temperature varies from 24°C to 30°C and the relative humidity is always high, averaging 75-80%.

#### Climate No information

**Vegetation** All the endemic plants known from Mahé are present within the park. At least one species, *Balsamine Impatiens thomassetii* is limited to a single locality only. Although largely invaded by exotics, such as *Albizia falcata* and *Cinnamomum zeylanicum*, it still contains some relic communities of native *Randia sericea*, *Nepenthes pervillei*, and *Northea seychellarum*. The largest known populations of two of the four species listed for the Seychelles in the IUCN Plant Red Data Book, 'Bois de Fer' *Vateria seychellarum* and 'Bois meduse' *Medusagyne oppositifolia*, are also found in the area. Other threatened species present are the palm *Rocheria melanochaetes*, which is well represented in the park, and *Toxocarpus schimperianus*, only recently discovered at two sites.

**Fauna** Several large roosts of endemic fruit bat *Pteropus seychellensis* survive here, and the endemic sheath-tailed bat *Coleura seychellensis*, has been seen, and all the endemic bird species known for Mahé have been recorded from the park; it is assumed that other taxa are also fully represented. The greater part of the known populations of two of threatened birds limited to Mahé, the bare-legged scops owl *Otus insularis* (R) and the Seychelles white-eye *Zosterops modestus* (E), exist in the park. Of the 15 other species of terrestrial birds recorded, nine of them occur in particularly large numbers, especially the blue pigeon *Alectroenas pulcherrima*, thick-billed bulbul *Hypsipetes crassirostris*, swiftlet *Collocalia francica* and Seychelles sunbird *Nectarinia dussumieri*. A significant number of white-tailed tropic bird *Phaethon lepturus* still breed on the mountains. Many of the native Seychelles reptiles are present, such as Seychelles house snakes *Boaedon geometricus*, Seychelles wolf snake *Lycognophus seychellensis*, Brahminy blind-snake *Ramphotyphlops braminus* and the lizards *Chamaeleo tigris*, *Phelsuma atriata* and *P. longisulca*. All known species of caecilians native to the Seychelles are to be found, including the very uncommon *Prastinia cooperii* (in fact only rediscovered in June 1983).

#### Cultural Heritage No information

**Local Human Population** There are a few small farms and settlements within the boundaries of the park and some areas of cultivation are quite extensive (Republic of Seychelles, 1978).

**Visitors and Visitor Facilities** Tourism development consists primarily of provision of viewing points, refreshment facilities, paths, interpretive facilities, and literature.

**Scientific Research and Facilities** Studies of the systematics and ecology of the reptiles and amphibians; some surveys on the distribution of rare endemic plants; estimates of the various fruit bat colonies; preliminary work on the Seychelles white-eye and the scops owl; and a doctoral study on the Seychelles kestrel.

#### No information

#### Conservation Value No information

**Conservation Management** Morne Seychellois National Park only protects terrestrial biota, the two bays which flank Ternay Bluff (Baie Ternay and Port Launay) are designated separately as marine national parks. The birds are protected under the Wild Animals and Birds Protection ordinance, No. 37 1961.

A draft management plan drawn up in 1979 has yet to be implemented. Other areas principally degraded are being reafforested, mostly with *Meliaceae* such as *Sandoricum ratiatum* and *Swietenia macrophylla*. An additional small area is under tea plantation.



Certain areas are administered as strict nature reserves where only scientists accompanied by forest rangers are allowed. Since 1983, even the traditional cinnamon pickers have been instructed to stay clear of these areas.

**Management Constraints** Past exploitation of timber and forest fires has done irreparable damage. Since 1950, the reafforestation work has resulted in the vegetation cover being re-established to some extent. Exotic species like Albizzia, cinnamon Ochorosia, Psidium, and Lantana are encroaching on a large scale. There has been some tree felling for the erection of a 33kv powerline. The Forêt Noire Road from Victoria to the south coast passes through the western portion of the park. Ternay Bluff is separated from the rest of the park by a track and a strip of pasture/cultivation. Army exercises are carried out in the park occasionally.

**Staff** No information

**Budget** No information

**Local Addresses**

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

**References**

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Republic of Seychelles (1978). Mahé, 1:10,000 scale map prepared by the British Governments Ministry of Overseas Development (Directorate of Overseas Surveys. Series Y851 (D.O.S 204).

Wilson, J.R. (1980). The Morne Seychellois National Park, A preliminary Management Plan.

**Date** June 1983

**Praslin National Park**

**MANAGEMENT CATEGORY** VIII (Multiple Use Management Area)

**BIOGEOGRAPHICAL PROVINCE** 4.16.13 (Seychelles and Amirantes Island)

**LEGAL PROTECTION** No information

**DATE ESTABLISHED** 15 May 1979

**GEOGRAPHICAL LOCATION** No information

**ALTITUDE** No information

**AREA** 675ha. Includes Vallée de Mai Nature Reserve (proposed WHS)

**LAND TENURE** No information

**PHYSICAL FEATURES** Second largest granitic island of the Seychelles.

**VEGETATION** No information

**NOTEWORTHY FAUNA** Praslin is the only habitat of the black parrot *Coracopsis nigra barklyi* (R). Two other bird species endemic to the Seychelles are Seychelles bulbul *Hypsipetes crassirostris*, and the blue pigeon *Alectroenas pulcherrima*.

ZONING No information

CONSERVATION MANAGEMENT No information

DISTURBANCES OR DEFICIENCIES No information

VISITOR FACILITIES Day trips by boat or plane can be made from Mahé.

SCIENTIFIC RESEARCH No information

SPECIAL SCIENTIFIC FACILITIES No information

PRINCIPAL REFERENCE MATERIAL Information taken from Directorate of Overseas Surveys (1980) Praslin with La Digue and Adjacent Islands. 1:30,000 map.

STAFF 1 Assistant warden

BUDGET No information

LOCAL PARK OR RESERVE ADMINISTRATION No information

DATE 1982

Aldabra Atoll Special Nature Reserve

IUCN Management Category I (Strict Nature Reserve) X (World Heritage Site - Criteria: ii, iii, iv)

Biogeographical Province 3.24.13 (Comores Islands and Aldabra)

Geographical Location An atoll north of the Mozambique Channel, 420km north-west of Madagascar and 640km east of the East African mainland. 9°25'S, 46°25'E

Date and History of Establishment 17 February 1976 as a strict nature reserve under the Protection and Preservation of Wild Life Ordinance, 1970 (BIOT). Designated as a special reserve by Designation of Special Reserve (Aldabra) Order, 1981. Accepted as a World Heritage site in 1982.

Area 35,000ha (18,800ha land, 2,000ha mangrove, and 14,200ha sea)

Land Tenure Government, administered by the Seychelles Island Foundation. The Royal Society acquired a 14-year lease in 1976 from the Government of the British Indian Ocean Territory. This was then taken over in 1980 by the Seychelles Islands Foundation, a charitable trust established under the Seychelles Islands Foundation Decree 1979.

Altitude Most of the reserve is less than 3m above sea level.

Physical Features Aldabra is a classic coral atoll, 34km long by maximum of 14.5km wide, which has been built up from the seabed. It consists of four main islands of coral limestone separated by narrow passes and enclosing a large shallow lagoon. Most of the land surface comprises on ancient coral reef (about 125,000 years old) now raised above sea-level, the rest being even older reef limestones. The lagoon, which covers some 15,000ha, contains many smaller islands and the entire atoll is surrounded by an outer reef. Geomorphological processes have produced a varied topography, generally rugged, which supports a variety of habitats with a relatively rich biota for an oceanic island, and a high degree of endemism. Over much of the surface of the islands, weathering has led to dissection of the limestones into holes and pits, though at the eastern end the surface is more continuous on upraised lagoonal sediments. Along the coast are undercut limestone cliffs, with a perched beach and sand dunes on the southern (windward) coast. Marine habitats range from coral reefs to mangrove mudflats with minimal human impact. Tidal range is more than 3m, which can lead to strong channel currents.



**Climate** Semi-arid with a pronounced wet season from November to April. Average annual rainfall is 1200mm, though this is very variable.

**Vegetation** The terrestrial flora is exceptionally rich for a small coral island, with 273 species of flowering plant and fern. Much of the land is covered with dense *Pemphis acidula* thicket and other shrubs. There are 19 endemic species including *Peponium sublitoreale* (R), which is only known on the south island. A further 22 species are shared only with neighbouring islands. Many of these plants are considered to be threatened. Mangroves surround the lagoon, and inshore waters also support sea-grass meadows.

**Fauna** This island group is one of the few areas of the world where reptiles dominate the terrestrial fauna, with the largest world population (152,000) of giant tortoise *Geochelone gigantea* (R), which appears to be self-sustaining. Green turtle *Chelonia mydas* (E) breed here, with approximately 1,000 females laying annually. There are 13 species of terrestrial birds including the last representative of the western Indian Ocean flightless birds - Aldabran rail *Dryolimnas cuvieri aldabranus* (about 5,000 individuals) with two endemic Aldabran forms. Aldabra warbler *Nesillas aldabranus* (E) has not been seen for several years and might be naturally extinct. Previously restricted to 10ha of coastal tall scrub, this was considered possibly the most endangered bird in the world, as only five birds have been seen since its discovery in 1968 (Collar and Stuart, 1985). Aldabran drongo *Dicurus aldabranus* (1,500 birds inhabiting scrub, mangrove and Casuarina), and some endemic subspecies, including Aldabra white-throated rail, are also found. There is a population of about 8,000 birds of this flightless race, which does not seem seriously threatened by the feral cats. The islands are important breeding grounds for thousands of seabirds, including several thousand each of red-tailed tropic bird *Phaethon rubricauda* and white-tailed tropic bird *P. lepturus*, hundreds of masked booby *Sula dactylatra*, several thousand red-footed booby *S. sula*, some Abbott's booby *S. leucogaster*, and thousands each of greater frigatebird *Fregata minor* and lesser frigatebird *F. ariel*. There are also thousands of nesting terns (Feare, 1984). The only endemic mammal is a flying fox. So far about 1,000 species of insect have been recorded, many of them new and endemic forms.

**Cultural Heritage** None

**Local Human Population** There is no permanent settlement. The resident population is composed of Foundation employees and visiting scientists.

**Visitors and Visitor Facilities** No information

**Scientific Research and Facilities** An intensive research effort covering the whole atoll has been in operation since 1967. Particular mention should be made of the survey and monitoring of the tortoise and turtle populations initiated in 1982 (funded by WWF), and the study made on Aldabra warbler by Prys-Jones (1979). Additional studies are regularly carried out by scientists from the Smithsonian Institution. A fully-equipped research station was established by the Royal Society in 1971, maintained by the Seychelles Islands Foundation to whom it was donated in 1980. The Seychelles Government maintains a meteorological station. Accommodation and a network of field stations is available for a maximum of 15 scientists.

**Conservation Value** No information

**Conservation Management** Protective regulations under the National Parks and Nature Conservancy Act (Cap 159) came into force on 9 September 1981 (Aldabra Special Reserve Regulations 1981). Previously, only partial protection for specified animals was provided. The reserve extends to 1km below the high water mark. The history of conservation at Aldabra is fully described in Stoddart (1971). The present requirement is to maintain the policy of minimum human interference while continuing the research/monitoring programme. Particular attention must be directed towards the ecology of exotic species to provide a basis for future management. Successive national development plans stress provision for the economic development of the outer islands of the Seychelles. The Seychelles Islands Foundation/Royal Society document 'A management plan for Aldabra', has been accepted by the Government of Seychelles as a guideline for the future management of the atoll.

**Management Constraints** The mangroves and populations of turtles, fish and tortoises have recovered from past exploitation. However, the difficulties of effectively patrolling the atoll, and easy access by sea, threatens the integrity of the reserve through unauthorised export of tortoises and turtles, disturbance of seabird colonies and other wildlife, and the hazard of fire. Rats, cats and goats have been introduced and established. Goats increased four-fold between 1977 and 1982. Two scientific eradication campaigns have been conducted in 1987 and 1988 with Unesco support, on Malabar and Grande Terre islands. The total number of goats killed during the two programmes represents approximately 75%-85% of the total population. The eradication is being actively followed up (M. Marieu, pers. comm., 1990). Prys-Jones (1979) recommended that no east-west paths should be cut on this island, to try and limit goat or tortoise encroachment. The proliferation of mealy bug *Icerya seychellarum*, accidentally introduced into Aldabra, has seriously damaged native vegetation, particularly endemic species. A programme of biological control of this species, through the introduction of a specific coccinellid predator *Rodolia chermesina*, was launched in 1988 with ORSTOM assistance and is still being implemented (M. Marieu, pers. comm., 1990). Attempts have been made to control the spread of exotic plants. The maintenance of conservation interest, and realisation of full scientific value of the site, is dependent upon the ability of the Foundation to support adequate wardening staff and a functioning research station. The Foundation is wholly dependent upon subscription and donation income, and shortage of funds, is therefore, a potential danger. Development is restricted to small-scale tourism, deep-sea fishing and limited exploitation of some natural resources.

**Staff** Warden appointed by the Seychelles Island Foundation in 1982 and seconded from the Department of Environment with 8-10 resident Foundation employees (M. Marieu, pers. comm., 1990).

**Budget** 1981: US\$534,000 raised in the 1979 appeal. 1982: 45,000 annual grant one-third of which was provided by the Seychelles Government. In 1990, the total annual budget of the Seychelles Islands Foundation was SR1.3 million (US\$250,000). Regular contributions from the Royal Society, the Smithsonian Institution and the Seychelles Government and occasional donations provide about 20% of the Foundation's revenues (M. Marieu, pers. comm., 1990).

#### Local Addresses

Chairman, Seychelles Islands Foundation, c/o Department of Environment, PO Box 445, Victoria, Mahé

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Date 1984, updated April 1990

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Aride Island Special Reserve

IUCN Management Category I (Strict Nature Reserve)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Island)

**Geographical Location** Aride is the northernmost granitic island of the Seychelles group some nine kilometers north-north-east of Praslin Island. 4°08'S, 55°40'E.

**Date and History of Establishment** Aride was purchased in 1973 by Christopher Cadbury for the Royal Society for Nature Conservation (formerly the Society for the Promotion of Nature Reserves). Declared a Special Reserve 17 June 1975 by the National Parks and Nature Conservancy (Designation of Special Reserve) (Aride Island) Order.

Area 70ha

Land Tenure Royal Society for Nature Conservation (RSNC), United Kingdom.

Altitude Sea level to 134m

**Physical Features** Some 90% of the crescent-shaped island is occupied by a rugged hill rising to 134m, while the remaining area is a flat coastal plain (plateau) not more than 4m above high tide level. The fairly exposed fringing coral reefs around the island, notable for the spur and groove formations found near the landing stage, have been proposed for inclusion in the park.

Climate No information

**Vegetation** The vegetation of the Aride hill is largely free of exotic plant species and is the most natural and undisturbed of any of the small islands in the Seychelles. Since the coppicing of *Pisonia grandis* stopped in 1975, it has grown quickly to become the dominant species. Aride is reknowned as the only known locality of Wright's gardenia *Rothmania annae*. Other significant species include various *Ficus* species, 'Bois du Lait' *Euphorbia pycnantha* and 'Liane sans famille' *Tournefortia argentea*, *Hernandia ovigera*, *Morinda citrifolia*, *Barringtonia asiatica*, *Tournefortia argentea* and *Hibiscus tiliaceus*. There is also an extensive stand of cultivated banana *Musa* sp. and the small freshwater swamp is dominated by coco yam.

**Fauna** Aride is the home of over a million pairs of seabirds comprising 11 species and boasts the world's largest colonies of both the lesser noddy *Anous stolidus* and roseate tern *Sterna dougalli*. It is the only place in granitic Seychelles where the red-tailed tropic bird *Phaeton rubricauda* is still breeding, though only in low numbers. Among the other seabirds to be seen are: fairy tern *Gygis alba*, black noddy *Anous tenuirostris*, bridled tern *Sterna anaethetus*, sooty tern *S. fuscata*, white-tailed tropic bird *Phaeton lepturus*, wedge-tailed shearwater *Puffinus pacificus*, Audubon shearwater *P. herminieri*, Lesser frigate bird *Fregata ariel*, and greater frigate bird *F. minor*. It also has a single male magpie robin *Copsychus sechellarum*, the sole survivor of two attempts to establish a second breeding population from Fregate Island. Its marsh and plateau are the best sites for observing the endemic moorhen *Gallinula chloropus sechellarum*; apart from this, there are no other native land birds surviving on the island (Diamond and Feare, 1980). A small number of hawksbill turtles *Eretmochelys imbricata* (E) nest on the beach. At least two species of skink are known from the



island, occurring in large numbers. They are the principal predators of the sea birds' eggs and young chicks. Lizards include: *Mabuya sechellensis*, *Mabuya wrightii*, *Scelores gardineri*, *Ailuronyx sechellensis*, *Phyllodactylus inexpectatus*, *Phelsuma astriata*, and snake species include *Lycognathophis sechellensis*. Aride is also noted for a particularly brightly coloured variety of the ultra-marine surgeon fish *Acanthurus* sp. and fine groves of staghorn corals.

Cultural Heritage No information

Local Human Population The area immediately surrounding the bay is cultivated, interspersed with small plantations of coconut and banana. The small farm workforce is also housed in the vicinity of the bay.

Visitors and Visitor Facilities The majority of visitors come to the island to see the bird colonies and considerable revenue is generated through tourism. Bathing is permitted and snorkelling and diving are considered excellent (Salm, 1977).

Scientific Research and Facilities There have been studies carried out on the vegetation and the seabird colonies (summarized by Chongseng, 1985), but there is no programme of continuous monitoring. Steven Warner has done a brief survey of the reefs. Tagging of turtles.

None

Conservation Value No information

Conservation Management The Aride Island Special Reserve Regulations 1979 (S.I. No. 92) define what is allowable within the reserve. Also listed as protected breeding site under the Turtle Protection Act, under which it is illegal to hunt turtles in the sea area 1,000m from the high water mark.

Access to some areas on the island is restricted.

A management plan has been enforced since 1975, but it does not cover the reefs just outside the currently protected area. The principal management objectives are to all development of the island's ecosystems to increase diversity of habitats, maintain the island's importance for seabirds, conserve native trees, protect coral reefs and marine life, education and research. No agriculture is carried out on the hills and certain areas such as the Frigate bird colony and red-tailed tropic bird nest are out of bounds. A network of footpaths is maintained. It has been proposed that the marine area up to a distance of 300m from the shore be declared a marine park.

Management Constraints Aride is one of the few islands in the Seychelles which has remained free from rats, cats and dogs, though since *Mus musculus* are unfortunately common, and the reefs are reported to be undamaged. Wildlife protection is hampered by the lack of trained and motivated staff and there is still some poaching of turtles, though fewer than are taken from outside the boundaries (Mortimer, 1985). Large numbers of birds eggs are also collected, both for consumption by the farm employees and for sale on other islands, this has affected bird numbers. Two plant species, the wild pineapple and the cactus (*Opuntia* sp.), are encroaching on the sooty tern colonies.

Staff One manager, six labourers, one boatman, one tourist guide

Budget 1982 - expenditure 191,465SR; income 67,800SR

Local Addresses

The Chairman, Aride Island Local Management Committee, c/o Ministry of Education, Seychelles.

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#### Cousin Island Special Reserve

IUCN Management Category I (Strict Nature Reserve)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location A small island on the shallow Seychelles Bank, 2.35km west-south-west of Miller's Point on Praslin Island. 4°19'S, 55°39'E

Date and History of Establishment Designated as a special reserve by the Seychelles Government in 1975 by the National Parks and Nature Conservancy (Designation of Special Reserve) (Cousin Island) Order. However, administered as a bird sanctuary since 1968 under the Wild Animals and Birds Protection Ordinance 1966.

Area 27ha land area, extends 400m offshore from the high water mark (the former bird sanctuary only included the island down to high water mark).

Land Tenure Purchased by the International Council for Bird Preservation, British Section in 1968. Responsibility has recently been transferred to ICBP International.

Altitude Below sea level to 69m

Physical Features The island is approximately rectangular in shape with a group of rocks (Roche Cannon) located some 200-300m off the north-west point, linked with the main island by a natural stony causeway which is exposed at low tide. About 80% of the island comprises a flat, coastal plain of phosphate sandstone on the northern and eastern flanks of the granite hill, which rises to 69m. The southern and western slopes are rocky and barren, right down to the shore, while the northern and eastern slopes support dense stands of trees. The north-west, north, and north-east shores are characterised by beaches of fine white sand, making up some 80% of the shoreline. The seasonal change in wind direction (north-west/south-east) leads to the constant movement of sand between the east and north coasts, which affects the strand line vegetation and littoral beach organisms, as well as the marine turtle nesting grounds. During the north-west monsoon the North Beach is eroded out, exposing banks of beach rock, while the East Beach develops a wide beach platform; the south-east monsoon reverses this and North Beach develops a supralittoral beach flat, up to



100m wide. There is also a fringing coral reef surrounding the island which extends, on average, some 200m out from the high water mark. The only running fresh water on the island is a small, seasonal rivulet carrying run-off from the hill down the northern slope to the depression near some wells. The climate is humid and tropical, with a mean annual rainfall of 1,620mm. The highest monthly rainfall occurs between December and February (north-west monsoon), while May to July is the driest season. Monthly temperatures range from 24°C to 26°C, being lowest from April to October/November when the south-east trade winds are at their strongest.

Climate No information

**Vegetation** The island supports a variety of vegetation types: coastal herb communities maintained by wind-blown salt-spray, characterised by *Boerhavia repens*, *Passiflora suberosa* and *Stenotaphrum dimidiatum*; mature *Pisonia grandis* forest; regenerated *Pisonia/Morinda citrifolia* woodland emerging under the abandoned coconut *Cocos nucifera* plantations on the coastal plain; *Panicum maximum*, *Cyperus polyphyllus* and *Fimbristylis/Bulbostylis* communities on the north and east hillside; *Cyperus ligularis* and the halophyte *Portulaca oleracea* on the south and west hill slopes; dense *Euphorbia pyrifolia* and *Pandanus balfouri* thickets and open sedge/herb communities on the granite slopes; substantial areas of mangrove *Avicennia marina* swamp in the shallow depression, flooded by high spring tides, between Anse Fregate and Ilot (SW), and a small freshwater marsh. Other notable species include the halophytes *Carica papaya* and *Scaevola taccata* found on the beach crests, *Casuarina equisetifolia* fringing the beaches, *Pandanus multispicatus*, *Guettarda speciosa*, *Ficus mantarum*, *Ficus avi-avis* and *Lagresia madagascariensis* (previously thought confined to Roche Cannon, but now recorded on the main island). More than 125 plant species have been recorded, over half of which are believed to be introduced (Fosberg, 1970), such as paw paw *Carica papaya* and castor oil *Ricinus communis*. By restricting the clearing of undergrowth, ICBP is hoping to re-establish the original island vegetation, which was thought to comprise forests of tall *Pisonia grandis* on the plateau; thickets of *Scaevola taccata* and *Suriana maritima* along the coast, backed by a dense hedge of *Cordia subcordata*, *Guettarda speciosa* and *Morinda citrifolia*; and dense woods of *Morinda* and *Ficus* spp. (Fosberg, 1970).

**Fauna** Cousin was acquired mainly because it was the home of three threatened endemic land birds namely: Seychelles brush warbler, *Acrocephalus sechellensis* (formerly *Bebrornis*) (R), Seychelles fody *Foudia sechellarum* (R), and Seychelles turtle dove *Streptopelia picturata rostrata* (E). This latter endemic race is believed to be extinct through hybridisation with the introduced race. By far the largest biomass is represented by large seabird colonies, including what is probably the largest breeding colony of the white fairy tern *Gygis alba* (10,000 in 1980) in the Seychelles, together with Audubon shearwater *Puffinus thermiaria* (1,000 in 1980), wedge-tail shearwater *P. pacificus* (35,000 in 1980), white-tailed tropic birds *Phaethon lepturus* (1,000 in 1980), and bridled terns *Sterna anaethetus* nesting on the hill, while black noddy *Anous tenuirostris* (200,000 in 1980) and common noddy *A. stolidus* (3,000 in 1980) prefer the coastal plain for their nest sites. In all, some 52 species of bird have been recorded from Cousin. Other notable species not already listed are, Madagascar fody *Foudia madagascariensis*, barn owl *Tyto alba*, and Indian mynah *Acridotheres tristis* (introduced species), Seychelles sunbird *Nectarina dussumieri* (endemic), great frigate bird *Fregata minor* (regular visitor), lesser frigate bird *F. ariel*, and European hobby *Falco subbuteo* (migrant). The only residential mammal is the hare *Lepus nigricollis*, which was introduced from India in the 1920s, but fruit bat *Pteropus sechellensis* commute from neighbouring Praslin to feed on ripe fruit. All domestic animals surviving from the days when the island was inhabited have been eliminated. There is an abundance of the skinks *Mabuya wrightii*, and *Scelotes gardineri*, and brown "loose skin" gecko *Ailuronyx sechellensis* are also fairly common. Cousin is acknowledged as having one of the largest populations of breeding hawksbill turtle *Eretmochelys imbricata* (E) in Seychelles and green turtle *Chelonia mydas* (E) also breed here occasionally. Other reptiles are: Seychelles terrapin *Pelusios subniger*, small green gecko *Phelsuma atriata* a small number of reintroduced giant tortoise *Geochelone gigantea* (R), *Mabuya sechellensis*, at least one species of Caecilian and *Phyllodactylus inexpectatus*. Over 230 fish species have so far been identified from the reefs (checklist in Frazier and Polunih, 1973). The most conspicuous invertebrates are the crabs, with three species of ghost crab *Ocypode* spp., and hermit crabs *Coenobita* spp.. Interesting terrestrial invertebrates include: the giant millipede *Scaphiostreptus madagascariensis*, scorpion *Isometrus maculatus*, an uncommon species of tail-less whip scorpion *Amblypygi* which is confined to Cousin, Cousine and Aride islands, and the Madagascar termite *Nasutitermes migricans*. Butterflies are extremely scarce with only six species recorded including painted lady *Cynthia cardui* and *Parallelia torrida*. The coral reefs were surveyed

in detail by Frazier and Polunin (1973) (includes species checklists of reef fish and corals) and UNEP/IUCN (in prep.) contains a summary of the reef structure and coral communities found encircling the island. The *Acropora* assemblage is most common, other characteristic coral species are: *Millepora platyphylla* and *M. dichotoma* in exposed areas, *Pocillopora* and *Stylophora*, *Porites* at the base of reef slopes.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities Tourism is restricted to daytime visitors, who are ferried during the daytime from nearby islands in staff boats, not more than 20 at a time and only on three specified days a week. There is no overnight accommodation.

Scientific Research and Facilities A fairly intensive research effort covering most of the flora and fauna has been carried out by the successive scientific administrators and is still being continued. Special attention has been given to the ecology, behaviour and population size of the brush warbler. Various ringing programmes have been carried out. Another long-term study has been the tagging of female hawksbill turtles; the hawksbill turtle population is probably the most studied in the world. F.R. Fosberg surveyed the vegetation in 1971. However, the full potential for research on the island has not yet been realised a few of the research priorities identified in the management plans (Diamond, 1975; 1980) have been achieved.

A fully-equipped research station with room for two or three visiting scientists was built from a donation by Ciba-Geigy.

Conservation Value No information

Conservation Management The Cousin Island Special Reserve Regulations (S.I. No. 93) were gazetted in 1979. The marine turtles are further protected under The Turtle Act, which lists Cousin as a protected breeding site. No turtles to be caught, killed, etc., within 1,000m of the high water mark. The collection of sea shells is prohibited under the protection of seashells Ordinance (Cap.138) of 1965.

ICBP manages the island as a nature reserve, integrating the interests of conservation, scientific research and limited tourism. The management objectives defined in the revised management plan (Diamond, 1980) are as follows (in order of priority): maintain the maximum possible number of the three endemic land birds; within this framework to restore the original habitat of the island, except when this conflicts with the primary objective; maintain the maximum possible population of hawksbill turtle on and around the island; maintain the maximum possible populations of seabirds breeding on the island; and make full use of the island's educational and research potential. The staff live on the island and buildings include the main house, three stores, three labourers' cottages and two boatsheds. The staff are in radio contact with nearby Praslin Nature Park and have three boats for transport. Undergrowth is no longer cleared in the coconut plantation to allow the natural regeneration of native vegetation. All domestic animal species have been eliminated and a strict ban on their import is maintained. The numbers of such introduced species as the Indian mynah and barn owl are controlled to avoid competition and predation with the indigenous species. There are regular beach patrols by reserve staff (reinforced by the Curieuse Patrol and Praslin Police) organised to protect the nests and breeding females of hawksbill turtle from poaching. In 1972, I. Robertson briefly surveyed the island.

There are certain very dense bird colony sites where the visitor access is prohibited; apart from this the island is too small for proper zoning.

Management Constraints Its past history as a well-maintained coconut plantation means that it is only now that the native vegetation is making a comeback. Many exotic species, such as papaya, castor oil and cotton, were introduced in the past. A patch of rangoon creeper is a persistent problem as it continually grows back vigorously despite repeated pruning and applications of weed killers. In an effort to encourage the return of native vegetation all coconuts that fall down are collected and shipped to Praslin. Occasional visits by the introduced African barn owl have to be watched as they prey on the fairy terns and have been responsible for the decline in their numbers on other islands in the Seychelles. Before 1968, the reefs were exploited for



shells. Some of the Praslin fishermen have persisted in poaching hawksbill turtles, though numbers taken within the protected area are lower than outside the boundaries (Mortimer, 1981).

**Staff** Formerly one expatriate scientific administrator plus five Seychellois workers. In 1982, the staff structure was reorganized, replace the post of scientific administrator by the posts of warden and research officer.

**Budget** 1981 - expenditure 161,133.44 Rs. (4,632.02); income 115,110.85 Rs (5,497.07). The maintainance costs have over the years come from the original capital raised to by the island, grants from WWF and the Fauna and Flora Preservation Society, and income from landing fees and the sale of coconuts. In 1985, funds were becoming harder to raise, possibly at the expense of conservation priorities (Diamond, 1985).

#### Local Addresses

Chairman Cousin Island Local Management Committee, c/o Plaisance, Mahé.

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Date June 1983

La Digue Veuve Reserve

IUCN Management Category IV (Managed Nature Reserve)

Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

Geographical Location On the western plateau of La Digue, some three hours by boat from Mahé Island. 4°21'S, 55°50'E.

Date and History of Establishment Declared a nature reserve in 1982 under the National Parks and Nature Conservancy Act, 1971.

Area 8ha

Land Tenure The property belongs to Mrs Rene Payet of La Digue. She has leased the property to Mr Christopher Cadbury of the Royal Society for Nature Conservation who has agreed to let the Forestry and Conservation Division of the Ministry of National Development manage it.

Altitude Up to 20m

Physical Features A low-lying plateau bordered on two sides by a public dirt road. Part of a large freshwater marsh is contained in the north-western portion of the reserve.

Climate No information

Vegetation The dominant woodland vegetation comprises mature and juvenile trees of takamaka *Callophyllum inophyllum* and badamier *Terminalia catappa*. There are also some old coconut trees *Cocos nucifera* and large *Casuarina equisetifolia*. When specimens of this latter species fall down in the high winds, they open considerable gaps in the closed canopy.

Fauna Seven to nine pairs of the threatened Seychelles black paradise flycatcher *Terpsiphone corvina* (R) survive in the reserve, which is also a good site for the Seychelles pond turtle *Pelusios subniger* and a species of caecilian abundant in the humus layer. The flycatcher, which is endemic to the Seychelles, is only found on La Digue and on neighbouring Praslin. Other indigenous birds to be found here include Seychelles bulbul *Hypsipetes crassirostris* and Seychelles sunbird *Nectarinia dussumieri*.

Cultural Heritage No information

Local Human Population No information

Visitors and Visitor Facilities The reserve is open to the public who are requested to remain on a marked path preferably in groups.

Scientific Research and Facilities Dr J. Watson has done some work in 1977-1978 on the distribution and ecology of the paradise flycatcher under IUCN/WWF Project 1590.

None

Conservation Value No information

Conservation Management No information

None

The draft regulations drawn up in 1979 are being enforced. Visitors are asked to keep to the paths and some care was given to the siting of the paths.

**Management Constraints** The land still belongs to Mrs Payet, but it has been recommended that the Seychelles Government should buy it. The marsh in the north-west corner is only a part of a larger marsh system, an essential habitat requirement for the paradise flycatcher. This means that the reserve is vulnerable to both marsh drainage and uses of pesticide outside the reserve boundaries. The reserve is the smallest in the Seychelles, and is on one of the most densely populated islands.

**Staff** In 1977, ICBP were funding a local Seychellois warden on La Digue (IUCN/WWF Project 1590).

**Budget** No information

**Local Addresses**

Conservation Officer, c/o Ministry of National Development, Independence House, Mahé.

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**Date** June 1983



## Sitesheets of some internationally designated coastal and marine protected areas

### *Seychelles*

#### Aldabra Atoll

IUCN Management Category I (Strict Nature Reserve)

X (World Heritage Site - Criteria: ii, iii, iv)

Biogeographical Province 3.24.13 (Comores Islands and Aldabra)

**Geographical Location** An atoll north of the Mozambique Channel, 420km north-west of Madagascar and 640km east of the East African mainland. 9°25'S, 46°25'E

**Date and History of Establishment** 17 February 1976 as a strict nature reserve under the Protection and Preservation of Wild Life Ordinance, 1970 (BIOT). Designated as a special reserve by Designation of Special Reserve (Aldabra) Order, 1981. Accepted as a World Heritage site in 1982.

**Area** 35,000ha (18,800ha land, 2,000ha mangrove, and 14,200ha sea)

**Land Tenure** Government, administered by the Seychelles Island Foundation. The Royal Society acquired a 14-year lease in 1976 from the Government of the British Indian Ocean Territory. This was then taken over in 1980 by the Seychelles Islands Foundation, a charitable trust established under the Seychelles Islands Foundation Decree 1979.

**Altitude** Most of the reserve is less than 3m above sea level.

**Physical Features** Aldabra is a classic coral atoll, 34km long by maximum of 14.5km wide, which has been built up from the seabed. It consists of four main islands of coral limestone separated by narrow passes and enclosing a large shallow lagoon. Most of the land surface comprises on ancient coral reef (about 125,000 years old) now raised above sea-level, the rest being even older reef limestones. The lagoon, which covers some 15,000ha, contains many smaller islands and the entire atoll is surrounded by an outer reef. Geomorphological processes have produced a varied topography, generally rugged, which supports a variety of habitats with a relatively rich biota for an oceanic island, and a high degree of endemism. Over much of the surface of the islands, weathering has led to dissection of the limestones into holes and pits, though at the eastern end the surface is more continuous on upraised lagoonal sediments. Along the coast are undercut limestone cliffs, with a perched beach and sand dunes on the southern (windward) coast. Marine habitats range from coral reefs to mangrove mudflats with minimal human impact. Tidal range is more than 3m, which can lead to strong channel currents.

**Climate** Semi-arid with a pronounced wet season from November to April. Average annual rainfall is 1200mm, though this is very variable.

**Vegetation** The terrestrial flora is exceptionally rich for a small coral island, with 273 species of flowering plant and fern. Much of the land is covered with dense *Pemphis acidula* thicket and other shrubs. There are 19 endemic species including *Peponium sublitorale* (R), which is only known on the south island. A further 22 species are shared only with neighbouring islands. Many of these plants are considered to be threatened. Mangroves surround the lagoon, and inshore waters also support sea-grass meadows.

**Fauna** This island group is one of the few areas of the world where reptiles dominate the terrestrial fauna, with the largest world population (152,000) of giant tortoise *Geochelone gigantea* (R), which appears to be self-sustaining. Green turtle *Chelonia mydas* (E) breed here, with approximately 1,000 females laying annually. There are 13 species of terrestrial birds including the last representative of the western Indian Ocean flightless birds - Aldabran rail *Dryolimnas cuvieri aldabranus* (about 5,000 individuals) with two

endemic Aldabran forms. Aldabra warbler *Nesillas aldabranus* (E) has not been seen for several years and might be naturally extinct. Previously restricted to 10ha of coastal tall scrub, this was considered possibly the most endangered bird in the world, as only five birds have been seen since its discovery in 1968 (Collar and Stuart, 1985). Aldabran drongo *Dicrurus aldabranus* (1,500 birds inhabiting scrub, mangrove and Casuarina), and some endemic subspecies, including Aldabra white-throated rail, are also found. There is a population of about 8,000 birds of this flightless race, which does not seem seriously threatened by the feral cats. The islands are important breeding grounds for thousands of seabirds, including several thousand each of red-tailed tropic bird *Phaethon rubricauda* and white-tailed tropic bird *P. lepturus*, hundreds of masked booby *Sula dactylatra*, several thousand red-footed booby *S. sula*, some Abbott's booby *S. leucogaster*, and thousands each of greater frigatebird *Fregata minor* and lesser frigatebird *F. ariel*. There are also thousands of nesting terns (Feare, 1984). The only endemic mammal is a flying fox. So far about 1,000 species of insect have been recorded, many of them new and endemic forms.

#### Cultural Heritage None

**Local Human Population** There is no permanent settlement. The resident population is composed of Foundation employees and visiting scientists.

#### Visitors and Visitor Facilities No information

**Scientific Research and Facilities** An intensive research effort covering the whole atoll has been in operation since 1967. Particular mention should be made of the survey and monitoring of the tortoise and turtle populations initiated in 1982 (funded by WWF), and the study made on Aldabra warbler by Prys-Jones (1979). Additional studies are regularly carried out by scientists from the Smithsonian Institution. A fully-equipped research station was established by the Royal Society in 1971, maintained by the Seychelles Islands Foundation to whom it was donated in 1980. The Seychelles Government maintains a meteorological station. Accommodation and a network of field stations is available for a maximum of 15 scientists.

#### Conservation Value No information

**Conservation Management** Protective regulations under the National Parks and Nature Conservancy Act (Cap 159) came into force on 9 September 1981 (Aldabra Special Reserve Regulations 1981). Previously, only partial protection for specified animals was provided. The reserve extends to 1km below the high water mark. The history of conservation at Aldabra is fully described in Stoddart (1971). The present requirement is to maintain the policy of minimum human interference while continuing the research/monitoring programme. Particular attention must be directed towards the ecology of exotic species to provide a basis for future management. Successive national development plans stress provision for the economic development of the outer islands of the Seychelles. The Seychelles Islands Foundation/Royal Society document 'A management plan for Aldabra', has been accepted by the Government of Seychelles as a guideline for the future management of the atoll.

**Management Constraints** The mangroves and populations of turtles, fish and tortoises have recovered from past exploitation. However, the difficulties of effectively patrolling the atoll, and easy access by sea, threatens the integrity of the reserve through unauthorised export of tortoises and turtles, disturbance of seabird colonies and other wildlife, and the hazard of fire. Rats, cats and goats have been introduced and established. Goats increased four-fold between 1977 and 1982. Two scientific eradication campaigns have been conducted in 1987 and 1988 with Unesco support, on Malabar and Grande Terre islands. The total number of goats killed during the two programmes represents approximately 75%-85% of the total population. The eradication is being actively followed up (M. Marieu, pers. comm., 1990). Prys-Jones (1979) recommended that no east-west paths should be cut on this island, to try and limit goat or tortoise encroachment. The proliferation of mealy bug *Icerya seychellarum*, accidentally introduced into Aldabra, has seriously damaged native vegetation, particularly endemic species. A programme of biological control of this species, through the introduction of a specific coccinellid predator *Rodolia chermesina*, was launched in 1988 with ORSTOM assistance and is still being implemented (M. Marieu, pers. comm., 1990). Attempts have been made to control the spread of exotic plants. The maintenance of conservation interest, and realisation of full scientific value of the site, is dependent upon the ability of the Foundation to support adequate wardening staff and a functioning research station. The Foundation is wholly dependent upon subscription and donation

income, and shortage of funds, is therefore, a potential danger. Development is restricted to small-scale tourism, deep-sea fishing and limited exploitation of some natural resources.

Staff Warden appointed by the Seychelles Island Foundation in 1982 and seconded from the Department of Environment with 8-10 resident Foundation employees (M. Marieu, pers. comm., 1990).

Budget 1981: US\$534,000 raised in the 1979 appeal. 1982: 45,000 annual grant one-third of which was provided by the Seychelles Government. In 1990, the total annual budget of the Seychelles Islands Foundation was SR1.3 million (US\$250,000). Regular contributions from the Royal Society, the Smithsonian Institution and the Seychelles Government and occasional donations provide about 20% of the Foundation's revenues (M. Marieu, pers. comm., 1990).

#### Local Addresses

Chairman, Seychelles Islands Foundation, c/o Department of Environment, PO Box 445, Victoria, Mahé

#### References

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World Heritage Nomination (1981). Aldabra Atoll.

Date 1984, updated April 1990

0269P

Vallée de Mai Nature Reserve

IUCN Management Category IV (Managed Nature Reserve)

X (World Heritage Site - Criteria: i, ii, iii, iv)



#### Biogeographical Province 4.16.13 (Seychelles and Amirantes Islands)

**Geographical Location** Within Praslin National Park on Praslin Island, 50km north-east of Mahé in the Seychelles. 4°19'S, 55°44'E

**Date and History of Establishment** 18 April 1966 as a nature reserve under the Wild Birds Protection (Nature Reserves) Regulation S.I. No. 27. Further protection under the National Parks and Nature Conservancy Act (Cap. 159) S.I. No. 57 of 1979, Praslin National Park (Designation) Order of 1979, and the Coco-de-mer Management Decree 1978. Designated as a World Heritage site in 1983.

**Area** 18ha, within Praslin National Park (675ha)

**Land Tenure** Government

**Altitude** Close to sea level to approximately 500m

**Physical Features** A valley close to sea-level in the north-eastern portion of Praslin National Park on the granitic island of Praslin. The streams originating in the valley feed into Nouvelle De-Couverte River which flows eastward through the national park, joining the sea to the north of Fonde de l'Anse. The other principal river in the park, Fond B'Offay, flows westward into Baie Sainte Anne. This area survived untouched until the 1930s and still retains some palm forest in a near natural state.

**Climate** No information

**Vegetation** Four principal vegetation types have been identified from Praslin, three of which occur in the Vallée de Mai area. 1) Lowland forest (30-180m) once dominated by large timber trees such as *Mimusops* sp. and *Eugenia* spp. but, following human settlement, now comprises well developed secondary forest with the endemic palm *Phoenixophorium borsigianum*, cinnamon *Cinnamomum zeylanicum*, *Dodonaea viscosa*, mango *Mangifera indica*, *Sideroxylon ferrugineum*, and *Randia lancifolia*; 2) intermediate palm forest (30-500m), unique within the Seychelles, being the only area where five of the endemic palm species occur together. 3) Vallée de Mai, with the monospecific palms *Deckenia nobilis*, *P. borsigiana*, coco-de-mer *Lodoicea maldivica* (V) (bearer of the largest seed in the plant kingdom), *Verschaffeltia splendida* and *Nephrosperma vanhoutteana* (all endemic to the Seychelles), together with *Pandanus* spp., *Dillenia* sp., and *Adenanthera pavonina*; 4) eroded land (100-500m), resulting from burning and subsequent soil erosion, has been recolonised by *Randia lancifolia*, *P. borsigiana*, *Dodonaea* sp., and *Dillenia ferruginea*, or planted with 'coco plum' *Chrysobalanus icaco*, mahogany *Swietenia* sp., and lemon grass *Cymbopogon citratus* in an attempt to stabilise the substrate - it previously supported intermediate and lowland forest. In addition to the palms, a further 28 endemic species of plants have been identified on the island, including *Toxocarpus schimperianus* (E), a species of vine once thought extinct and then believed to exist only on Curieuse island. *Takamaka Callophyllum inophyllum* and calice du pape *Tabebuia pallida* are two of the species introduced to the island.

**Fauna** The most noteworthy bird (with a population of 90 in 1976) is the endemic subspecies of black parrot *Coracopsis nigra barklyi* (E), restricted to Praslin Island and totally dependent on the Vallée de Mai and surrounding palm forest. A survey in 1984 indicated that 30 pairs remained (M. Marieu, pers. comm., 1990). Other birds include: African barn owl *Tyto alba affinis*, Seychelles bulbul *Hypsipetes crassirostris*, blue pigeon *Alectroenas pulcherrima*, sunbird *Nectarinia dussamieri*, and cave-nesting swiftlet *Collocalia francica elaphra*. There are few mammal species on the island, apart from the endemic Seychelles flying fox *Pteropus seychellensis* (which roosts in the reserve), *Coleura seychellensis* (seen regularly) and the insectivorous tenrec *Tenrec ecaudatus*, introduced to the Seychelles from Madagascar. Reptiles include the endemic chameleon *Chamaeleo tigris*, Seychelles house snake *Boaedon geometricus*, Seychelles wolf snake *Lycognathophis seychellensis* and blind snake *Ramphotyphlops braminus*, green geckos *Phelsuma sundbergi* and *P. astriata*, bronze gecko *Ailuronyx sechellensis*, skinks *Mabuya sechellensis*, *Scelotes gardineri*, and *S. braueri*. Six species of caecilians are known to occur in the deep beds of moist humus, but they are only rarely seen. The stream contains freshwater crab *Dekenia allaudi*, large freshwater prawn *Macrobrachium* lar, shrimp *Caridina* sp. and the only species of freshwater fish endemic to the Seychelles, gurgeon



**Pachypanchax playfairi.** The two endemic snails known to occur are brown snail *Stylodonta studeriana* and blackfish snail *Pachnodus arnatus*.

**Cultural Heritage** No information

**Local Human Population** None in the Vallée de Mai, other than a forestry settlement in Praslin National Park where forest and park rangers are accommodated.

**Visitors and Visitor Facilities** Access to the valley is on foot along marked trails from the road, which divides the national park in two, where it passes the mouth of the valley. Guided tours are available (M. Marieu, pers. comm., 1990).

**Scientific Research and Facilities** Some work has been done by individuals on the black parrot and on palm geckos and a University Expedition to the island (Ascroft, 1976 and 1977) studied forest regeneration, Seychelles fruit bat, tenrecs and black parrot. The palm forests are of great botanical interest.

**Conservation Value** No information

**Conservation Management** The reserve itself is a strictly protected zone within Praslin National Park. It is completely surrounded by the national park, a multiple use management area mainly devoted to conservation of endemic forest, notably the coco-de-mer forest. Access within the reserve is restricted to a carefully designed system of paths. Policies were decided by the Seychelles National Environment Commission and a draft management plan, which includes the reserve, has been prepared for the Praslin National Park. Since 1 January 1989 the management of Vallée de Mai has been entrusted to the Seychelles Islands Foundation. Collection of coco-de-mer nuts is controlled by law (Coco de Mer Management Decree, 1978); thier commercialisation is a government monopoly. Every four to five years nuts are not collected but are allowed to germinate in order to ensure natural regeneration of the palm forest (M. Marieu, pers. comm., 1990).

**Management Constraints** There has been exploitation of timber and planting of exotics such as coffee, patchouli *Pogostemon cablin*, *Albizia falcata*, *Cinnamomum zeylanicum*, *Psidium cattleianum* and *Philodendron* sp. However, this has now ceased and for several years exotic plants have been removed (M. Marieu, pers. comm., 1990) and much of the Vallée has been replanted with endemic palms. Attempts to remove dead vegetation have led to erosion but remaining litter is suggested to constitute a fire hazard. A firebreak has been established around the reserve which is regularly maintained. The national park formerly included a tea plantation in the south and a village settlement. However, the plantation has been closed down and there is effectively no residential population other than officials in the settlement (M. Marieu, pers. comm., 1990). In 1984 there were intentions to construct a government road through the valley, but the plans have been shelved (Willis, 1984). A potential problem is that the area does not include the whole water catchment and the human population of Praslin is growing rapidly.

**Staff** Staff of the Forestry and Conservation Division (Department of Conservation) and of the Seychelles Islands Foundation.

**Budget** Included in Forestry and Conservation Divisions recurrent budget and the budget of the Seychelles Islands Foundation which totalled SR 1.3 million (US\$ 250,000) in 1990 (m. Marieu, pers. comm., 1990).

**Local Addresses**

Conservation Officer, c/o Ministry of National Development, PO Box 53, Mahé

**References**

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Date June 1983, updated April 1990

## **Dugongs**

### **Comoros Islands**

Dugongs occur in very small numbers mostly around Moheli.

### **Madagascar**

Very few. One very small population at Befotaka Bay, Nosy-Bé. Another small population at Ile Sainte-Marie (summer) and Antogil (winter) (east central Madagascar) - migration (Antogil to Ile Sainte Marie) between September-February. Migration is becoming later and there are fewer individuals in the herd. Several 10's reported in 1994 on the east coast of Madagascar. Traditional killings are considered normal by the locals, but are adversely affecting population numbers. Japanese fishing boats are allowed, by 1991 treaty, to operate in waters known to hold dugongs; this may affect populations. Dugongs may occur in the east side of Ile Sainte-Marie but the reef has been little explored.

### **Mauritius**

Extinct early this century.

### **Réunion**

None.

### **Seychelles**

Extinct early this century.

# Marine Turtles

## Turtles in the western Indian Ocean - general

There are 5 species of turtle in the Indian Ocean.

1. Green Turtle (*Chelonia mydas*). IUCN global status: Endangered A1abd. Relatively common in parts of western Indian Ocean.
2. Hawksbill (*Eretmochelys imbricata*). IUCN global status: Critically Endangered A1abd+2bcd. Common in western Indian Ocean.
3. Loggerhead (*Caretta caretta*). IUCN global status: Endangered A1abd.
4. Olive Ridley (*Lepidochelys olivacea*). IUCN global status: Endangered A1abd.
5. Leatherback (*Dermochelys coriacea*). IUCN global status: Endangered A1abd.

## Comoros Islands

Green and Hawksbill nest, Loggerhead, Olive Ridley and Leatherback probably occur but do not nest. Green mostly found on Moheli. Status: Major rookery. Feeding ground. Approximately 1 900 nest annually. Nesting late January-late June. Migration: Tagged females found in coastal Tanzania and Mozambique.

Hawksbill mostly found on Moheli. Status: Nesting ground. Major feeding ground. Approximately 50 nest annually. Nesting from late December-May. Migration: Population mostly resident; possible migration between islands.

### Grande Comore

Many Hawksbill and Greens found in the waters, mainly juveniles; does not appear to be important as a nesting ground. Migration: Population likely to be migrant (not known where from).

### Moheli

Green turtles number approximately 1 850\_nesting annually. Hawksbills regularly seen on the reef; no evidence of nesting. Threats: Exploitation by humans; predation from feral dogs. Migration: Population appears to be resident.

### Anjouan

Not important as a nesting ground, possibly important for feeding. Migration: Population likely to be migrant (not known where from).

### Mayotte

Green turtles number approximately 500 nesting annually. No evidence for Hawksbill turtles nesting. Migration: Population largely resident; possible interchange of males between other Comoros islands. Threats: Excessive rate of exploitation.



## **Malagasy Republic**

Green, Loggerhead, Olive Ridley and Hawksbill nest on Madagascan coast, Leatherbacks (vagrant) found in the open ocean.

### ***Madagascar***

Green mostly found on the west coast. Status: Breeding ground. Major feeding ground. Approximately 100-300 nest annually. Nesting season from September-February. Most active: November-January. Higher population of foraging than nesting turtles. Migration: Tagged females from Europa and Tromelin recaptured.

Hawksbill mostly found on the west coast. Status: Breeding ground. Major feeding ground. No reliable estimation is known for annual nesting numbers (25-2500). Nesting season from September-February. Most active: November-January. Migration: Probably from Europa and Tromelin.

Loggerhead mostly found on the south coast. Status: Breeding ground. Feeding ground. Nesting season from September-February.

Olive Ridley mostly found on the west coast. Status: Feeding ground. Nesting season from September-February.

### ***Mitsio Islands***

Nesting total appears to be less than 12 annually.

### ***Nossi Be***

No nesting recorded.

### ***Nossi Iranja***

Less than 100 nest annually.

### ***Isles Radama***

Evidence of approximately 12 Hawksbills nesting annually. Legislation protects laying females and turtles smaller than 50cm carapace; this does not appear to have been enforced. Threats: Intensive harvest of adults.

## **Mauritius**

Green approximately 300 nest annually. Status: Nesting ground. Feeding ground. Foraging Green turtles occur; nesting ceased due to over-exploitation and expansion of colonial population. Migration: Tagged females from Tromelin recorded.

Hawksbill approximately 25 nest annually. Status and Exploitation: Nesting ground. Feeding ground. Non breeding turtles exploited.

Leatherback Status: vagrant. Threats: Over exploitation; cyclonic storms.

### ***St. Brandon Shoals***

Green. approximately 300 nest annually. Nesting occurs November-February Hawksbill approximately 25 nest annually. Presence occasionally recorded in nearby waters.

## **Réunion**

Green approximately 7 000 nest annually. Status: Major rookery. Feeding ground. Hawksbill approximately 50 nest annually. Status: Nesting ground. Feeding ground. Leatherback Status: vagrant.

### ***La Réunion***

Both Green and Hawksbill juveniles occur on the main island; not used as a nesting site due to over-exploitation and development of tourism. Experimental Green turtle farm (1975).

### ***Europa***

Green 4 300 nest annually. Nesting beaches on all faces of the island. Nesting season November-April. Most active: November-January. Migration: Tagged turtles from Europa found in Mauritius and Madagascar. Hawksbill frequently found in waters around the island but rarely on the island itself. Island has been a nesting reserve since 1923.

### ***Tromelin Islands***

Green approximately 2 000 nesting annually. Nesting mostly on north western beaches. Nesting season much of the year. Most active: November-May; peak in November-January. Migration: Tagged turtles from Tromelin found in Mauritius and Madagascar. Hawksbill Seen occasionally, but not in recent years. Threats: Introduced rats and rabbits; lighthouse confusing hatchling orientation; heavy exploitation by humans.

### ***Iles Glorieuses***

Green approximately 250 nesting annually. Nesting season May-July. Most active: June-July. Hawksbill Possibly approximately 50 nesting annually. Threats: Presence of a large population of ghost crabs which predate on hatchlings.

## **Seychelles**

Over exploitation has caused a drastic decline in numbers. Green and Hawksbill nest; Loggerhead and Leatherback reported (vagrant).

Green approximately 2 500 nest annually. Year round nesting. Most active: May to September. Status: Major rookery. Feeding ground.

Migration: Some movement between islands; suspected to forage in Mozambique. 1968 ban on hunting Green turtles.

Hawksbill approximately 600 nest annually. Status and Exploitation: Nests. Feeds. Nesting females exploited. 1000's non breeding turtles exploited. Migration: Some movement between islands.

### ***Granitic Seychelles Islands***

Green turtles are not common approximately 20 nesting annually. Hawksbills are more abundant approximately 40 nesting annually. Cousin Island is the primary nesting ground for Hawksbills in the West Indian Ocean. Threats: Increased hunting pressure; habitat destruction.

### ***Amirantes Islands***

Green turtles nest but only approximately 200 annually. Hawksbills are common in the water but fewer nest - approximately 100-150 annually.

### ***Aldabra Group***

Green turtles nest approximately 1000 annually. Most important nesting ground for Green turtles in the Seychelles. Hawksbills are regularly seen but only nest in insignificant numbers.

Most important reserves: Green = Aldabra Islands; Hawksbill = Cousin Island.

## Mangroves

On the Indian Ocean islands, the development of mangroves is very variable. The variation can be often related to either the morphology of particular islands, or to their isolation. The very steeply shelving rocky shores of some islands provide little space for mangroves to develop, and the most remote islands are perhaps too isolated for large-scale mangrove establishment, especially if they are regularly affected by tropical cyclones. East Africa, particularly Kenya, Tanzania, Mozambique, and the western coast of Madagascar, has the best developed mangroves in terms of area, species diversity and forest structure.

In general, mangroves in this region appear to be less threatened by man than elsewhere, although detailed information is scarce for a number of countries. The harsh environmental conditions in many areas mean that coastal populations are not large and there is little pressure to convert mangroves to other uses. Aquaculture has not become widespread as it has in other regions. Some mangrove areas have been lost to urbanisation. Other areas have been severely degraded by salt extraction, overgrazing, unsustainable collection of fuel wood or pollution from oil or urban sources. Population growth in some areas will increase these pressures.

### Mangrove species by country

Species	Co	Ma	Mt	Re	Se
<i>Acrostichum aureum</i>		X			X
<i>Avicennia marina</i>		X			X
<i>Bruguiera gymnorrhiza</i>		X	X		X
<i>Ceriops tagal</i>		X			X
<i>Heritiera littoralis</i>		X			
<i>Lumnitzera racemosa</i>		X			X
<i>Pemphis acidula</i>					X
<i>Rhizophora mucronata</i>		X	X		X
<i>Rhizophora racemosa</i>					
<i>Sonneratia alba</i>		X			X
<i>Xylocarpus granatum</i>		X			X

#### Country codes

Co – Comoros (no data)

Ma - Madagascar

Mt - Mauritius

Re – Réunion (mangroves not recorded)

Se - Seychelles

In Madagascar, mangroves are almost entirely limited to the western coast facing the Mozambique channel, with only about 50 sq km of mangroves found along the eastern coast. The most significant mangrove stands are found in the north-west, at Mahajamba Bay, Bombetoka, South Mahavavy and Salala, and Maintirano, where the climate is semi-humid. Many of the stands are in sheltered river mouth areas, but linear formations also occur in Mahavavy and Maintirano. Trees in this area may reach 20 m in height. Further to the southwest, the climate becomes more arid, with a dry season of seven to nine months in duration, and extensive mangrove areas are less common. In this region, wide areas of bare saline soils are often found behind the mangroves, known as "tannes" or "sira-sira". Typically, trees in this area rarely



reach 6 m in height. Human uses of the mangroves are limited in extent, although may be considerable in the areas around Tuléar and Mahajanga, particularly for charcoal and timber. Fishing occurs in mangrove areas, particularly for prawns, but there has been no clearance for aquaculture. This lack of human disturbance can be largely related to the relatively low population densities in most mangrove areas, combined with the availability of other timber and fuelwood sources. Demographic trends suggest that pressure on mangrove areas could increase considerably in the future. The generally quoted area of mangroves (3,270 sq km) is based on a 1966 estimate, but it has been suggested that the total area may not have decreased, or may have even increased since that time, resulting from the colonisation of rapidly advancing alluvial deposits.

There are no endemic mangroves in the Indian Ocean islands.

## Breeding seabirds of the western Indian Ocean Islands

The information in this table was taken from Feare, C.J. 1984. Seabird Status and Conservation in the Tropical Indian Ocean. 457-471 In: Croxall, J.P., Evans, P.G.H. & Schreiber, R.W. (eds.) 1984. Status and Conservation of the World's Seabirds. International Council for Bird Preservation Technical Publication No. 2, ICBP, Cambridge. pp. 779

		COM	MAD	MAU	REU	SEY
<i>Puffinus pacificus</i>	Wedge-tailed Shearwater		X	X	X	X
<i>Puffinus lherminieri</i>	Audubon's Shearwater				X	X
<i>Pterodroma arminjonia</i>	Herald Petrel			X		
<i>Pterodroma aterrima</i>	Mascarene Petrel				X	
<i>Pterodroma baraui</i>	Barau's Petrel				X	
<i>Phaethon rubricauda</i>	Red-tailed Tropicbird			X	X	X
<i>Phaethon lepturus</i>	White-tailed Tropicbird	X	X	X	X	X
<i>Sula dactylatra</i>	Masked Booby			X	X	X
<i>Sula sula</i>	Red-footed Booby				X	X
<i>Sula leucogaster</i>	Brown Booby				X	X
<i>Phalacrocorax africanus</i>	Long-tailed Cormorant		X			
<i>Fregata minor</i>	Greater Frigatebird			X	X	X
<i>Fregata ariel</i>	Lesser Frigatebird			X	X	X
<i>Larus cirrocephalus</i>	Grey-headed Gull		X			
<i>Sterna caspia</i>	Sterna caspia		X			X
<i>Sterna dougallii</i>	Roseate Tern		X	X		X
<i>Sterna sumatrana</i>	Black-naped Tern					X
<i>Sterna anaethetus</i>	Bridled Tern		X			X
<i>Sterna fuscata</i>	Sooty Tern		X	X	X	X
<i>Sterna bergii</i>	Greater Crested Tern		X	X	X	X
<i>Sterna bengalensis</i>	Lesser Crested Tern		X			
<i>Chlidonias hybrida</i>	Whiskered Tern		X			
<i>Anous stolidus</i>	Brown Noddy		X	X	X	X
<i>Anous tenuirostris</i>	Lesser Noddy			X		X
<i>Gygis alba</i>	White Tern			X		X

COM = Comoros Islands

MAD = Madagascar

MAU = Mauritius

REU = Réunion

SEY = Seychelles

# Globally Threatened Species of the Western Indian Ocean

## IUCN Threatened Species Categories

**EXTINCT (EX)** A taxon is Extinct when there is no reasonable doubt that the last individual has died.

**EXTINCT IN THE WILD (EW)** A taxon is Extinct in the wild when it is known only to survive in cultivation, in captivity or as a naturalised population (or populations) well outside the past range. A taxon is presumed extinct in the wild when exhaustive surveys in known and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

**CRITICALLY ENDANGERED (CR)** A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E (see below).

**ENDANGERED (EN)** A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the criteria A to E.(see below)

**VULNERABLE (VU)** A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the criteria A to D (see below).

**LOWER RISK (LR)** A taxon is Lower Risk when it has been evaluated, but does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

1. Conservation Dependent (cd). Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
2. Near Threatened (nt). Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.
3. Least Concern (lc). Taxa which do not qualify for Conservation Dependent or Near Threatened.

**DATA DEFICIENT (DD)** A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution are lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

**NOT EVALUATED (NE)** A taxon is Not Evaluated when it has not yet been assessed against the criteria.

## The criteria for critically endangered, endangered and vulnerable species

### CRITICALLY ENDANGERED (CR)

A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

1) An observed, estimated, inferred or suspected reduction of at least 80% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following: a) direct observation b) an index of abundance appropriate for the taxon c) a decline in area of occupancy, extent of occurrence and/or quality of habitat d) actual or potential levels of exploitation e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2) A reduction of at least 80%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B) Extent of occurrence estimated to be less than 100 km<sup>2</sup> or area of occupancy estimated to be less than 10 km<sup>2</sup>, and estimates indicating any two of the following:

1) Severely fragmented or known to exist at only a single location.

2) Continuing decline, observed, inferred or projected, in any of the following: a) extent of occurrence b) area of occupancy c) area, extent and/or quality of habitat d) number of locations or subpopulations e) number of mature individuals.

3) Extreme fluctuations in any of the following: a) extent of occurrence b) area of occupancy c) number of locations or subpopulations d) number of mature individuals.

C) Population estimated to number less than 250 mature individuals and either:

1) An estimated continuing decline of at least 25% within 3 years or one generation, whichever is longer or

2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either: a) severely fragmented (i.e. no subpopulation estimated to contain more than 50 mature individuals) b) all individuals are in a single subpopulation.

D) Population estimated to number less than 50 mature individuals.

E) Quantitative analysis showing the probability of extinction in the wild is at least 50% within 10 years or 3 generations, whichever is the longer

## ENDANGERED (EN)

A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

1) An observed, estimated, inferred or suspected reduction of at least 50% over the last 10 years or three generations, whichever is the longer, based on (and specifying) any of the following: a) direct observation b) an index of abundance appropriate for the taxon c) a decline in area of occupancy, extent of occurrence and/or quality of habitat d) actual or potential levels of exploitation e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.

2) A reduction of at least 50%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d), or (e) above.



B) Extent of occurrence estimated to be less than 5000 km<sup>2</sup> or area of occupancy estimated to be less than 500 km<sup>2</sup>, and estimates indicating any two of the following:

- 1) Severely fragmented or known to exist at no more than five locations.
- 2) Continuing decline, inferred, observed or projected, in any of the following: a) extent of occurrence b) area of occupancy c) area, extent and/or quality of habitat d) number of locations or subpopulations e) number of mature individuals.
- 3) Extreme fluctuations in any of the following: a) extent of occurrence b) area of occupancy c) number of locations or subpopulations d) number of mature individuals.

C) Population estimated to number less than 2500 mature individuals and either:

- 1) An estimated continuing decline of at least 20% within 5 years or 2 generations, whichever is longer, or
- 2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either: a) severely fragmented (i.e. no subpopulation estimated to contain more than 250 mature individuals) b) all individuals are in a single subpopulation.

D) Population estimated to number less than 250 mature individuals.

E) Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or 5 generations, whichever is the longer

## VULNERABLE (VU)

A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the following criteria (A to E):

A) Population reduction in the form of either of the following:

- 1) An observed, estimated, inferred or suspected reduction of at least 20% over the last 10 years or three generations, whichever is the longer,, based on (and specifying) any of the following: a) direct observation b) an index of abundance appropriate for the taxon c) a decline in area of occupancy, extent of occurrence and/or quality of habitat d) actual or potential levels of exploitation e) the effects of introduced taxa, hybridisation, pathogens, pollutants, competitors or parasites.
- 2) A reduction of at least 20%, projected or suspected to be met within the next ten years or three generations, whichever is the longer, based on (and specifying) any of (b), (c), (d) or (e) above.

B) Extent of occurrence estimated to be less than 20,000 km<sup>2</sup> or area of occupancy estimated to be less than 2000 km<sup>2</sup>, and estimates indicating any two of the following:

- 1) Severely fragmented or known to exist at no more than ten locations.
- 2) Continuing decline, inferred, observed or projected, in any of the following: a) extent of occurrence b) area of occupancy c) area, extent and/or quality of habitat d) number of locations or subpopulations e) number of mature individuals.
- 3) Extreme fluctuations in any of the following: a) extent of occurrence b) area of occupancy c) number of locations or subpopulations d) number of mature individuals.

C) Population estimated to number less than 10,000 mature individuals and either:

- 1) An estimated continuing decline of at least 10% within 10 years or 3 generations, whichever is longer, or
- 2) A continuing decline, observed, projected, or inferred, in numbers of mature individuals and population structure in the form of either: a) severely fragmented (i.e. no subpopulation estimated to contain more than 1000 mature individuals) b) all individuals are in a single subpopulation.

D) Population very small or restricted in the form of either of the following:

- 1) Population estimated to number less than 1000 mature individuals.
  - 2) Population is characterised by an acute restriction in its area of occupancy (typically less than 100 km<sup>2</sup>) or in the number of locations (typically less than 5). Such a taxon would thus be prone to the effects of human activities (or stochastic events whose impact is increased by human activities) within a very short period of time in an unforeseeable future, and is thus capable of becoming Critically Endangered or even Extinct in a very short period.
- E) Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

## Comoros

Taxon	IUCN Category
<b>MAMMALIA</b>	
<i>Pteropus livingstonii</i>	CR A1c+2cd B1+2c C2a
<i>Rousettus obliviosus</i>	LR nt
<i>Miniopterus minor</i>	LR nt
<i>Myotis goudoti</i>	LR nt
<i>Eulemur mongoz</i>	VU A1c, C2a
<i>Ziphius cavirostris</i>	DD
<i>Dugong dugon</i>	VU A1cd
<b>AVES</b>	
<i>Ardea humbloti</i>	VU C2a
<i>Ardeola idae</i>	LR nt
<i>Phoenicopterus minor</i>	LR nt
<i>Circus maillardi</i>	LR nt
<i>Columba pollenii</i>	LR nt
<i>Otus capnodes</i>	CR C2a
<i>Otus pauliani</i>	CR B1+2abc, C2b
<i>Humblotia flavirostris</i>	VU B1+2c, C2b
<i>Nesillas mariae</i>	LR nt
<i>Zosterops mouroniensis</i>	CR B1+2bc
<i>Dicrurus fuscipennis</i>	CR C2a
<b>REPTILIA</b>	
<i>Chelonia mydas</i>	EN A1abd
<i>Eretmochelys imbricata</i>	CR A1abd+2bcd
<b>SARCOPTERYGII</b>	
<i>Latimeria chalumnae</i>	EN A2cd, C2b
<b>INSECTA</b>	
<i>Amauris comorana</i>	EN B1+2c, C2b
<i>Amauris nossima</i>	VU B1+2c
<i>Graphium levassori</i>	EN B1+2c
<i>Papilio aristophontes</i>	EN B1+2c

## Madagascar

Taxon	IUCN Category
MAMMALIA	
<i>Limnogale mergulus</i>	EN B1+2c
<i>Microgale dryas</i>	CR B1+2c
<i>Microgale gracilis</i>	VU B1+2c
<i>Microgale parvula</i>	EN B1+2c
<i>Microgale principula</i>	EN B1+2c
<i>Microgale pulla</i>	VU B1+2c
<i>Microgale thomasi</i>	VU B1+2c
<i>Rousettus madagascariensis</i>	VU D2
<i>Emballonura atrata</i>	VU A2c
<i>Triaenops furculus</i>	VU A2c
<i>Myzopoda aurita</i>	VU A2c
<i>Miniopterus fraterculus</i>	LR nt
<i>Miniopterus minor</i>	LR nt
<i>Miniopterus schreibersi</i>	LR nt
<i>Myotis goudoti</i>	LR nt
<i>Scotophilus borbonicus</i>	CR A1c
<i>Scotophilus robustus</i>	LR nt
<i>Mormopterus acetabulosus</i>	VU B1+2c
<i>Mormopterus jugularis</i>	VU A2c
<i>Otomops martiensseni</i>	VU A2c
<i>Tadarida fulminans</i>	LR nt
<i>Allocebus trichotis</i>	CR A1c, B1+2abc
<i>Microcebus myoxinus</i>	VU B1+2abc
<i>Mirza coquereli</i>	VU A2cd, B1+2abc
<i>Phaner furcifer</i>	LR nt
<i>Eulemur coronatus</i>	VU A1cd, B1+2bc
<i>Eulemur macaco</i>	VU A1cd
<i>Eulemur mongoz</i>	VU A1c, C2a
<i>Eulemur rubriventer</i>	VU A2c
<i>Hapalemur aureus</i>	CR A2cd
<i>Hapalemur simus</i>	CR A2cd
<i>Lemur catta</i>	VU A1c
<i>Varecia variegata</i>	EN A1cd
<i>Lepilemur dorsalis</i>	VU A2cd, B1+2c
<i>Lepilemur septentrionalis</i>	VU A2cd
<i>Avahi occidentalis</i>	VU A2cd
<i>Indri indri</i>	EN A1c+2c
<i>Propithecus diadema</i>	EN A1cd
<i>Propithecus tattersalli</i>	CR A2c, B1+2bcd
<i>Propithecus verreauxi</i>	VU A2cd
<i>Daubentonia madagascariensis</i>	EN A2cd, C2a
<i>Galidictis fasciata</i>	VU A1cd+2cd
<i>Galidictis grandidieri</i>	EN B1+3b
<i>Mungotictis decemlineata</i>	VU B1+2c
<i>Salanoia concolor</i>	VU B1+2c
<i>Cryptoprocta ferox</i>	VU B1+2e
<i>Eupleres goudotii</i>	EN B1+2c
<i>Fossa fossa</i>	VU B1+2c
<i>Balaenoptera edeni</i>	DD
<i>Balaenoptera physalus</i>	EN A1abd
<i>Megaptera novaeangliae</i>	VU A1ad



<i>Lagenorhynchus obscurus</i>	DD
<i>Orcinus orca</i>	LR cd
<i>Sousa chinensis</i>	DD
<i>Stenella attenuata</i>	LR cd
<i>Stenella longirostris</i>	LR cd
<i>Dugong dugon</i>	VU A1cd
<i>Brachyuromys betsileoensis</i>	LR nt
<i>Brachyuromys ramirohitra</i>	LR nt
<i>Eliurus majori</i>	EN B1+2c
<i>Eliurus penicillatus</i>	CR B1+2c
<i>Eliurus webbi</i>	LR nt
<i>Gymnuromys roberti</i>	VU A2e
<i>Hypogeomys antimena</i>	EN A2c
<i>Macrotarsomys ingens</i>	CR B1+2c
AVES	
<i>Tachybaptus pelzelni</i>	VU A1ace+2ce, C1+2b
<i>Tachybaptus rufolarvatus</i>	CR D1
<i>Ardea humbloti</i>	VU C2a
<i>Ardeola idae</i>	LR nt
<i>Lophotibis cristata</i>	LR nt
<i>Phoenicopterus minor</i>	LR nt
<i>Anas bernieri</i>	EN C2b
<i>Anas melleri</i>	LR nt
<i>Aythya innotata</i>	CR D1
<i>Accipiter henstii</i>	LR nt
<i>Accipiter madagascariensis</i>	LR nt
<i>Circus maillardi</i>	LR nt
<i>Eutriorchis astur</i>	CR C1+2a
<i>Haliaeetus vociferoides</i>	CR C2b
<i>Mesitornis unicolor</i>	VU A2c, C1+2a
<i>Mesitornis variegata</i>	VU A2c, B1+2ac
<i>Monias benschi</i>	VU A2c, B1+2ce, C1+2b
<i>Amaurornis olivieri</i>	CR C2a
<i>Sarothrura watersi</i>	EN B1+2c, C2b
<i>Charadrius thoracicus</i>	VU B1+2e, C2b
<i>Coua verreauxi</i>	LR nt
<i>Tyto soumagnei</i>	EN C2a
<i>Atelornis crossleyi</i>	VU C2a
<i>Atelornis pittoides</i>	LR nt
<i>Brachypteracias leptosomus</i>	VU A2c, C1+2a
<i>Brachypteracias squamigera</i>	VU A2c, C1+2a
<i>Uratelornis chimaera</i>	VU B1+2ce, C2b
<i>Neodrepanis hypoxanthus</i>	EN C2a
<i>Philepitta schlegeli</i>	LR nt
<i>Phyllastrephus apperti</i>	VU B1+2abcd, C1+2a, D1
<i>Phyllastrephus cinereiceps</i>	VU B1+2c, C2a
<i>Phyllastrephus tenebrosus</i>	EN C2a
<i>Euryceros prevostii</i>	LR nt
<i>Oriolia bernieri</i>	VU C2a
<i>Xenopirostris damii</i>	VU D2
<i>Xenopirostris polleni</i>	VU C2a
<i>Crossleyia xanthophrys</i>	VU C2a
<i>Dromaeocercus brunneus</i>	LR nt
<i>Neomixis flavoviridis</i>	LR nt
<i>Newtonia fanovanae</i>	VU B1+2c, C2a
<i>Pseudobias wardi</i>	LR nt

<i>Pseudocossyphus bensoni</i>	VU D1
<i>Pseudocossyphus sharpei</i>	LR nt
<i>Randia pseudozosterops</i>	LR nt
<b>REPTILIA</b>	
<i>Brookesia perarmata</i>	VU A1d, D2
<i>Furcifer campani</i>	VU A1cd
<i>Furcifer labordi</i>	VU A1cd
<i>Furcifer minor</i>	VU A1cd
<i>Phelsuma standingi</i>	VU A1cd
<i>Acrantophis dumerili</i>	VU A1cd
<i>Acrantophis madagascariensis</i>	VU A1cd
<i>Sanzinia madagascariensis</i>	VU A1cd
<i>Caretta caretta</i>	EN A1abd
<i>Chelonia mydas</i>	EN A1abd
<i>Eretmochelys imbricata</i>	CR A1abd+2bcd
<i>Lepidochelys olivacea</i>	EN A1abd
<i>Erymnochelys madagascariensis</i>	EN A1cd+2d
<i>Geochelone gigantea</i>	VU D2
<i>Geochelone radiata</i>	VU A1acd+2cd, B1+2abc
<i>Geochelone yniphora</i>	EN A1c, B1+2cd
<i>Pyxis arachnoides</i>	VU B1+2abcd
<i>Pyxis planicauda</i>	EN A1cd, B1+2bcd
<b>AMPHIBIA</b>	
<i>Dyscophus antongilii</i>	VU A1cd
<i>Mantella aurantiaca</i>	VU A1cd
<b>ACTINOPTERYGII</b>	
<i>Ancharius brevibarbus</i>	DD
<i>Ancharius fuscus</i>	DD
<i>Bedotia geayi</i>	DD
<i>Bedotia longianalis</i>	DD
<i>Bedotia madagascariensis</i>	DD
<i>Rheocles lateralis</i>	DD
<i>Rheocles pellegrini</i>	DD
<i>Rheocles wrightae</i>	CR A1c
<i>Teramulus kieneri</i>	DD
<i>Pachypanchax sakaramyi</i>	VU B1+2a, D2
<i>Pantanodon madagascariensis</i>	EN B1+2a
<i>Oxylapia polli</i>	VU D2
<i>Paretroplus dami</i>	VU A2ce
<i>Paretroplus kieneri</i>	VU A2ce
<i>Paretroplus maculatus</i>	CR A2cde B1+2abcde
<i>Paretroplus petiti</i>	CR A2cde B1+2abcde
<i>Ptychochromoides sp.</i>	VU D2
<i>Ptychochromoides betsileanus</i>	CR A1ace B1+2abcde C2a
<i>Typhleotris madagascariensis</i>	VU D2
<i>Typhleotris pauliani</i>	VU D2
<i>Glossogobius ankaranensis</i>	CR B1+2c
<b>CRUSTACEA</b>	
<i>Tropodiaptomus madagascariensis</i>	DD
<i>Astacoides betsileoensis</i>	DD
<i>Astacoides caldwelli</i>	DD
<i>Astacoides crosnieri</i>	EN B1+2c

<i>Astacoides granulimanus</i>	DD
<i>Astacoides madagascariensis</i>	DD
<i>Astacoides petiti</i>	EN B1+2c

#### INSECTA

<i>Adetomyrma venatrix</i>	CR B1+2c
<i>Parapheidole oculata</i>	VU D2
<i>Amauris nossima</i>	VU B1+2c
<i>Papilio groesmithi</i>	LR nt
<i>Papilio mangoura</i>	VU B1+2c
<i>Papilio morondavana</i>	DD
<i>Libellulosoma minuta</i>	VU B1+2c
<i>Isomma hieroglyphicum</i>	VU A1c

#### BIVALVIA

<i>Tridacna maxima</i>	LR cd
<i>Tridacna squamosa</i>	LR cd

#### GASTROPODA

<i>Afrogyrus starmuehlneri</i>	EN B1+2abcd
<i>Tropidophora deburghiae</i>	EN B1+2c
<i>Cleopatra grandidieri</i>	LR nt
<i>Melanatria fluminea</i>	LR nt
<i>Melanatria madagascarensis</i>	LR nt
<i>Ampelita (Eurystyla) julii</i>	EN B1+2abc
<i>Ampelita (Eurystyla) soulaiana</i>	VU D2
<i>Ampelita (Xystera) fulgurata</i>	EN B1+2abc
<i>Clavator moreleti</i>	VU B1+2c

# Mauritius

Taxon	IUCN Category
MAMMALIA	
<i>Pteropus niger</i>	VU A1d+2cd
<i>Pteropus rodricensis</i>	CR B1+3d
<i>Mormopterus acetabulosus</i>	VU B1+2c
<i>Macaca fascicularis</i>	LR nt
<i>Mesoplodon densirostris</i>	DD
<i>Dugong dugon</i>	VU A1cd
AVES <i>Papasula abbotti</i>	VU C2b D2
<i>Phoenicopterus minor</i>	LR nt
<i>Anas melleri</i>	LR nt
<i>Haliaeetus vociferoides</i>	CR C2b
<i>Falco punctatus</i>	EN D1
<i>Columba mayeri</i>	CR D1
<i>Psittacula echo</i>	CR D1
<i>Collocalia francica</i>	LR nt
<i>Coracina typica</i>	VU D1
<i>Hypsipetes olivaceus</i>	VU D1
<i>Bebrornis rodericanus</i>	CR D1
<i>Zosterops chloronothos</i>	CR A1a B1+2c C2b
<i>Foudia flavicans</i>	VU D1+2
<i>Foudia rubra</i>	CR B1+2abce C2b
REPTILIA	
<i>Nactus coindemerensis</i>	EW
<i>Nactus serpensinsula</i>	VU D2
<i>Phelsuma guentheri</i>	EN D1
<i>Leiopisma telfairii</i>	VU D2
<i>Casarea dussumieri</i>	EN D1
<i>Chelonia mydas</i>	EN A1abd
<i>Eretmochelys imbricata</i>	CR A1abd+2bcd
<i>Geochelone gigantea</i>	VU D2
<i>Geochelone radiata</i>	VU A1acd+2cd B1+2abc
<i>Palea steindachneri</i>	LR nt
CHILOPODA	
<i>Scolopendra abnormis</i>	VU D2
CRUSTACEA	
<i>Birgus latro</i>	DD
INSECTA	
<i>Rhantus socialis</i>	VU A2c
<i>Amauris phoedon</i>	VU B1+2c
<i>Euploea euphon</i>	VU B1+2c
<i>Papilio manlius</i>	LR nt
<i>Argiocnemis solitaria</i>	CR B1+2c
<i>Platycnemis mauriciana</i>	CR B1+2c
BIVALVIA	
<i>Tridacna maxima</i>	LR cd
<i>Tridacna rosewateri</i>	VU A2cd



*Tridacna squamosa*

LR cd

GASTROPODA

*Afrogyrus rodriguezensis*

EN B1+2abcd

*Bulinus cernicus*

LR nt

*Gyraulus mauritanus*

VU D2

*Omphalotropis hieroglyphica*

EN B1+2ab

*Tropidophora articulata*

EN B1+2c

*Tropidophora carinata*

DD

*Tropidophora michaudi*

DD

*Lambis violacea*

DD

*Elasmias cernicum*

VU B1+2ab

*Elasmias jaurffreti*

DD

*Caldwellia imperfecta*

VU B1+2a D2

*Ctenophila caldwelli*

EN B1+2a

*Dancea rodriguezensis*

EN B1+2a

*Dupontia levis*

VU B1+2a

*Dupontia nitella*

VU B1+2ab

*Dupontia perlucida*

EN B1+2a

*Dupontia poweri*

VU B1+2a

*Thapsia snelli*

EN B1+2a

*Erepta odontina*

EN B1+2a

*Erepta stylodon*

CR B1+2a

*Harmogenanina implicata*

CR B1+2c

*Nesopupa madgei*

VU B1+2ab

*Nesopupa rodriguezensis*

DD

*Gonidomus sulcatus*

VU C2a

*Gonospira duponti*

CR C2b

*Gonospira holostoma*

VU B1+2ab

*Gonospira madgei*

VU B1+2ab

*Gonospira striaticostus*

VU D2

*Gonospira teres*

VU D2

*Gulella antelmeana*

EN B1+2a

*Microstrophia modesta*

EN B1+2ab

*Microstrophia nana*

VU B1+2a D2

ENOPLA

*Geonemertes rodericana*

DD

## Réunion

Taxon	IUCN Category
<i>Pteropus niger</i>	VU A1d+2cd
<i>Scotophilus borbonicus</i>	CR A1c
<i>Mormopterus acetabulosus</i>	VU B1+2c
<i>Balaenoptera borealis</i>	EN A1abd
AVES	
<i>Pterodroma aterrima</i>	CR D1
<i>Pterodroma baraui</i>	CR A1d
<i>Phoenicopterus minor</i>	LR nt
<i>Circus maillardi</i>	LR nt
<i>Collocalia francica</i>	LR nt
<i>Coracina newtoni</i>	EN D1
REPTILIA	
<i>Acrantophis dumerili</i>	VU A1cd
<i>Chelonia mydas</i>	EN A1abd
<i>Eretmochelys imbricata</i>	CR A1abd+2bcd
<i>Geochelone gigantea</i>	VU D2
<i>Geochelone radiata</i>	VU A1acd+2cd B1+2abc
INSECTA	
<i>Euploea euphon</i>	VU B1+2c
<i>Papilio phorbanta</i>	VU B1+2ac
GASTROPODA	
<i>Lantzia carinata</i>	CR B1+2c
<i>Tropidophora carinata</i>	DD
<i>Elasmias cernicum</i>	VU B1+2ab
<i>Pilula praetumida</i>	VU B1+2ab
<i>Caldwellia imperfecta</i>	VU B1+2a D2
<i>Ctenophila setiliris</i>	EN B1+2a
<i>Ctenophila vorticella</i>	VU B1+2a D2
<i>Dupontia nitella</i>	VU B1+2ab
<i>Plegma caelatura</i>	VU B1+2a
<i>Harmogenanina argentea</i>	VU B1+2ab
<i>Harmogenanina detecta</i>	DD
<i>Nesopupa madgei</i>	VU B1+2ab
<i>Gonospira bourguignati</i>	LR nt
<i>Gonospira cylindrella</i>	VU B1+2ab
<i>Gonospira deshayesi</i>	EN B1+2ab
<i>Gonospira turgidula</i>	VU B1+2ab
<i>Gonospira uvula</i>	EN B1+2a

# Seychelles

Taxon	IUCN Category
MAMMALIA	
<i>Coleura seychellensis</i>	CR B1+2cde C2b D1
<i>Chaerephon pusilla</i>	VU D1+2
<i>Balaenoptera edeni</i>	DD
<i>Globicephala macrorhynchus</i>	LR cd
<i>Grampus griseus</i>	DD
<i>Orcinus orca</i>	LR cd
<i>Stenella attenuata</i>	LR cd
<i>Stenella coeruleoalba</i>	LR cd
<i>Stenella longirostris</i>	LR cd
<i>Tursiops truncatus</i>	DD
<i>Mesoplodon densirostris</i>	DD
<i>Ziphius cavirostris</i>	DD
<i>Papasula abbotti</i>	VU C2b
<i>Ardeola idae</i>	LR nt
<i>Phoenicopterus minor</i>	LR nt
<i>Falco araea</i>	VU D1
<i>Crex crex</i>	VU A1ac
<i>Glareola nordmanni</i>	LR nt
<i>Numenius tenuirostris</i>	CR C2b
<i>Otus insularis</i>	CR C2b
<i>Collocalia elaphra</i>	VU D1
<i>Bebrornis sechellensis</i>	VU D1+2
<i>Copsychus sechellarum</i>	CR D1
<i>Terpsiphone corvina</i>	CR B1+2abce
<i>Zosterops modestus</i>	CR C2b
<i>Foudia sechellarum</i>	VU D2
<i>Dicrurus aldabranus</i>	LR nt
<i>Chelonia mydas</i>	EN A1abd
<i>Eretmochelys imbricata</i>	CR A1abd+2bcd
<i>Pelusios seychellensis</i>	VU D2
<i>Geochelone gigantea</i>	VU D2
<i>Tachynemis seychellensis</i>	VU D2
<i>Nesomantis thomasseti</i>	EN B1+2c
<i>Sooglossus gardineri</i>	VU D2
<i>Sooglossus sechellensis</i>	VU D2
<i>Birgus latro</i>	DD
<i>Polposipus herculeanus</i>	CR B1+2c
<i>Euploea mitra</i>	EN B1+2c
<i>Tridacna maxima</i>	LR cd
<i>Tridacna squamosa</i>	LR cd
<i>Paludomus ajanensis</i>	EN B1+2abcd
<i>Imperturbatia violescent</i>	EN B1+2c

## Endemic Bird Areas (EBAs) of the Western Indian Ocean Islands

Endemic Bird Area data has been kindly supplied by BirdLife International, and adapted from Stattersfield, A.J., Crosby, M.J., Long, A.J. and D.C. Wedge. 1998. Endemic Bird Areas of the world: Priorities for Biodiversity Conservation, BirdLife International, UK. pp846. This book is available from Natural History Book Distributors (U.K.) and Smithsonian Institution Press (U.S.A.).

The eleven EBAs in Comoros, Madagascar, Mauritius, Réunion and Seychelles (plus Rodrigues) are numbered according to Stattersfield *et al.* (1998), in the following table and in the regional maps. Where possible the altitude ranges of the birds is given – only those endemic birds with ranges that renders them vulnerable to oil spills have been included here.

Reference should be made to the previous section for an explanation of the IUCN codes for global status.



**EBA 093 West Malagasy dry forests**

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
White-breasted Mesite	<i>Mesitornis variegata</i>	VU	0-200
Coquerel's Coua	<i>Coua coquereli</i>	LC	0-800
Schlegel's Asity	<i>Philepitta schlegeli</i>	NT	0-800
Van Dam's Vanga	<i>Xenopirostris damii</i>	VU	0-300
Thamnornis Warbler	<i>Thamnornis chloropetoides</i>	LC	0-500
Archbold's Newtonia	<i>Newtonia archiboldi</i>	LC	0-100

**EBA 094 East Malagasy wet forests**

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Madagascar Serpent-eagle	<i>Eutriorchis astur</i>	CR	0-1000
Brown Mesite	<i>Mesitornis unicolor</i>	VU	0-1200
Coquerel's Coua	<i>Coua coquereli</i>	LC	0-800
Red-breasted Coua	<i>Coua serriana</i>	LC	0-1000
Madagascar Red Owl	<i>Tyto soumagnei</i>	EN	0-1200
Short-legged Ground-roller	<i>Brachypteracias leptosomus</i>	VU	0-1200
Scaly Ground-roller	<i>Brachypteracias squamiger</i>	VU	0-950
Rufous-headed Ground-roller	<i>Atelornis crossleyi</i>	VU	0-2000
Schlegel's Asity	<i>Philepitta schlegeli</i>	NT	0-800
Dusky Greenbul	<i>Phyllastrephus tenebrosus</i>	EN	0-950
Pollen's Vanga	<i>Xenopirostris polleni</i>	VU	0-2000
Bernier's Vanga	<i>Oriolia bernieri</i>	VU	0-900
Helmet Vanga	<i>Euryceros prevostii</i>	NT	0-1300
Nuthatch Vanga	<i>Hypositta corallirostris</i>	LC	0-1000
Wedge-tailed Jery	<i>Hartertula flavoviridis</i>	NT	0-800
Red-tailed Newtonia	<i>Newtonia fanovanae</i>	VU	0-800

**EBA 095 East Malagasy wetlands**

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Madagascar Fish-eagle	Meller's Duck	NT	0-1500
Slender-billed Flufftail	<i>Haliaeetus vociferoides</i> <sup>1</sup>	CR	0-1200
Madagascar Rail	<i>Sarothrura watersi</i>	LC-	0-1800
Madagascar Jacana	<i>Rallus madagascariensis</i>	LC	0-750
Madagascar Snipe	<i>Gallinago macrodactyla</i>	LC	0-2700

**EBA 096 West Malagasy wetlands**

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Madagascar Heron	<i>Ardea humbloti</i>	VU	0-1500
Madagascar Teal	<i>Anas bernieri</i>	EN	0-200
Madagascar Fish-eagle	<i>Haliaeetus vociferoides</i>	CR	0-1200
Sakalava Rail	<i>Amaurornis olivieri</i>	CR	0

Madagascar Jacana	<i>Actophilornis albinucha</i>	LC	0-750
Madagascar Plover	<i>Charadrius thoracicus</i>	VU	0

### EBA 097 South Malagasy spiny forests

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Subdesert Mesite	<i>Monias benschi</i>	VU	0-100
Running Coua	<i>Coua cursor</i>	LC	0-200
Verreaux's Coua	<i>Coua verreauxi</i>	NT	0-100
Long-tailed Ground-roller	<i>Uratelornis chimaera</i>	VU	0-80
Red-shouldered Vanga	<i>Calicalicus rufocarpalis</i>	NE	0
Lafresnaye's Vanga	<i>Xenopirostris xenopirostris</i>	LC	0-100
Littoral Rock-thrush	<i>Monticola imerinus</i>	LC	0-190
Thamnornis Warbler	<i>Thamnornis chloropetoides</i>	LC	0-500
Archbold's Newtonia	<i>Newtonia archboldi</i>	LC	0-100

### EBA 098 Comoros Islands

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Anjouan Sunbird	<i>Nectarinia comorensis</i>	LC	All
Mayotte Sunbird	<i>Nectarinia coquerellii</i>	LC	All
Chestnut-sided White-eye	<i>Zosterops mayottensis</i>	LC	All
Red-headed Fody	<i>Foudia eminentissima</i>	LC	All
Mayotte Drongo	<i>Dicrurus waldenii</i>	CR	All

### EBA 099 Aldabra

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Comoro Blue-pigeon	<i>Alectroenas sganzini</i>	LC	Sea Level
Aldabra Warbler	<i>Nesillas aldabrana</i>	EX	Sea Level
Red-headed Fody	<i>Foudia eminentissima</i>	LC	Sea Level
Aldabra Drongo	<i>Dicrurus aldabranus</i>	NT	Sea Level

### EBA 100 Granitic Seychelles

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Seychelles Kestrel	<i>Falco araea</i>	VU	No data
Seychelles Blue-pigeon	<i>Alectroenas pulcherrima</i>	LC	No data
Seychelles Parakeet	<i>Psittacula wardi</i>	EX	No data
Seychelles Scops-owl	<i>Otus insularis</i>	CR	No data
Seychelles Swiftlet	<i>Collocalia elaphra</i>	VU	No data
Seychelles Bulbul	<i>Hypsipetes crassirostris</i>	LC	No data
Seychelles Magpie-robin	<i>Copsychus sechellarum</i>	CR	No data
Seychelles Warbler	<i>Acrocephalus sechellensis</i>	VU	No data

Seychelles Paradise-flycatcher	<i>Terpsiphone corvina</i>	CR	No data
Seychelles Sunbird	<i>Nectarinia dussumieri</i>	LC	No data
Chestnut-sided White-eye	<i>Zosterops mayottensis</i>	LC	No data
Seychelles White-eye	<i>Zosterops modestus</i>	CR	No data
Seychelles Fody	<i>Foudia sechellarum</i>	VU	No data

### EBA 101 Réunion

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Mascarene Parrot	<i>Mascarinus mascarinus</i>	EX	No data
Mascarene Swiftlet	<i>Collocalia francica</i>	NT	All
Mascarene Grey White-eye	<i>Zosterops borbonicus</i>	LC	0-2750
Réunion Starling	<i>Fregilupus varius</i>	EX	No data

### EBA 102 Mauritius

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Mauritius Kestrel	<i>Falco punctatus</i>	EN	No data
Pink Pigeon	<i>Columba mayeri</i>	CR	No data
Mauritius Blue-pigeon	<i>Alectroenas nitidissima</i>	EX	No data
Mauritius Parakeet	<i>Psittacula eques</i>	CR	No data
Mascarene Swiftlet	<i>Collocalia francica</i>	NT	No data
Mauritius Cuckoo-shrike	<i>Coracina typica</i>	VU	No data
Mauritius Bulbul	<i>Hypsipetes olivaceus</i>	VU	No data
Mascarene Paradise-flycatcher	<i>Terpsiphone bourbonensis</i>	LC	No data
Mascarene Grey White-eye	<i>Zosterops borbonicus</i>	LC	No data
Mauritius Olive White-eye	<i>Zosterops chloronothos</i>	CR	No data
Mauritius Fody	<i>Foudia rubra</i>	CR	No data

### EBA 103 Rodrigues

Species (English name)	Species (scientific name)	Global Status	Altitude range (m)
Rodrigues Parakeet	<i>Psittacula exsul</i>	EX	0
Rodrigues Warbler	<i>Acrocephalus rodericanus</i>	CR	0
Rodrigues Fody	<i>Foudia flavicans</i>	VU	0
Rodrigues Starling	<i>Necropsar rodericanus</i>	EX	0






# Coral Reefs and Mangroves of Madagascar




## Legend:


 Coral Reef

 Mangroves

 Wetlands

## Bathymetry

 0 - 200 m

 201 - 2000 m

 over 2000 m

0 100 200 300 400 500 Kilometers

Projection geographic; map compiled by Dr I. Lysenko, 9.4.1998



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# Distribution and Nesting Sites of Sea Turtles in Madagascar







## Legend:

### Feeding areas:

-  Green turtle
-  Hawksbill turtle

### Nesting sites:

-  Green turtle
-  Hawksbill turtle
-  Loggerhead turtle
-  Olive Ridley turtle (not proved)

### Bathymetry

-  0 - 200 m
-  201 - 2000 m
-  over 2000 m

0 100 200 300 400 500 Kilometers

Projection geographic; map compiled by Dr I. Lysenko, 9.4.1998



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## Endemic Bird Areas of West Indian Ocean Islands



### Endemic Bird Areas:

- 93 - West Malagasy dry forest
- 94 - East Malagasy wet forest
- 95 - East Malagasy wetlands
- 96 - West Malagasy wetlands
- 97 - South Malagasy spiny forest
- 98 - Comoro Islands

- 99 - Aldabra  
100 - Granitic Seychelles  
101 - Reunion  
102 - Mauritius  
103 - Rodrigues

## Bathymetry

- 0 - 200 m  
201 - 2000 m  
over 2000 m



Projection: geographic; map compiled by Dr L Lysenko, 9.4.1998



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# Coastal and Marine Protected Areas of Madagascar



## Legend:

○ Protected Areas

 Mangroves

## Bathymetry

 0 - 200 m  
 201 - 2000 m  
 over 2000 m



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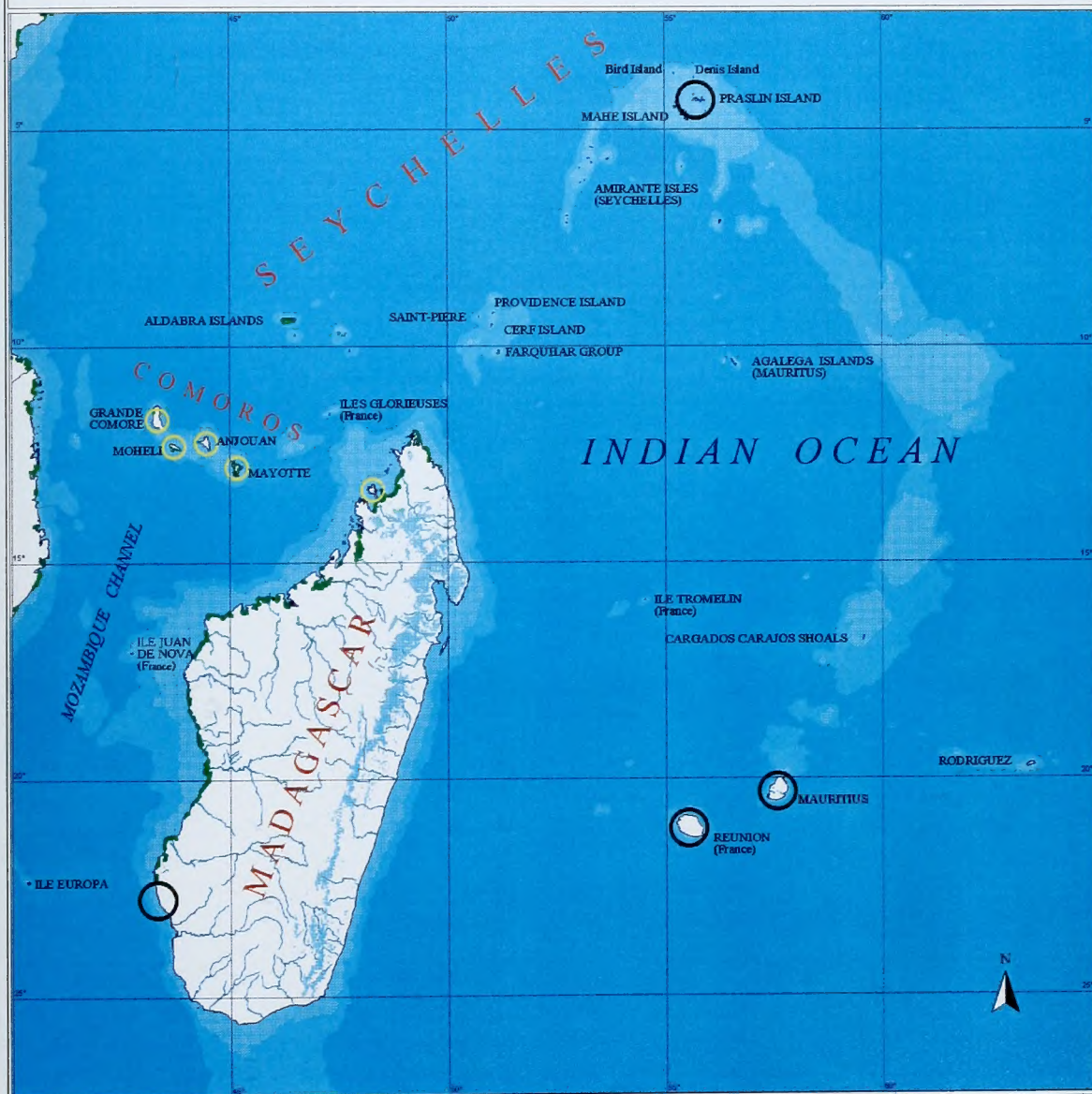
0 100 200 300 400 500 Kilometers

Projection geographic; map compiled by Dr I Lyenko, 9.4.1998





# Dugong Distribution in West Indian Ocean Islands



## Legend:

Mangroves

## Distribution of dugong:

Current distribution

Extinct

## Bathymetry

0 - 200 m  
 201 - 2000 m  
 over 2000 m



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Projection geographic; map compiled by Dr I. Lyenko, 9.4.1998



BOUND in 2007



